

Introduction and Overview

In this chapter we discuss the properties of NP-movement, which plays a part in the derivation of passive sentences and raising structures. We examine the characteristics of NP-movement and of the verbs that induce it. From our analysis it follows that each sentence is associated with two levels of syntactic representation: D-structure and S-structure. The relation between these levels will be discussed in this chapter.

In section 1 we give a general survey of movement transformations. In section 2 we concentrate on NP-movement as instantiated in passive sentences and in raising sentences. We shall discuss the arguments in favour of the assumption that a moved NP leaves a trace in its base-position. We shall also discuss raising adjectives. Section 3 focuses on the verbs which induce NP-raising. It will be argued that the case assigning properties of a verb depend on its argument structure. We discuss the distinction between two types of one-argument verbs: those with only an external argument ('intransitives') and those with only an internal argument ('unaccusatives'). In section 4 we examine the relation between D-structure and S-structure and we discuss how the principles of grammar posited so far apply to these levels. In section 5 we shall briefly consider an analysis which proposes that subject NPs are base-generated in the specifier position of VP.

1 Movement Transformations

We have already touched upon the movement of constituents in interrogative and in passive sentences (cf. chapters 2 and 3). In this section we give a general survey of the movement transformations posited so far.

1.1 *Passivization: Recapitulation*

In chapter 3 we discussed the properties of passivization illustrated in (1a):

- 1a This story is believed by the villagers.
- 1b The villagers believe this story.

(1a) contains the passive form of the verb *believe*. Comparing (1a) with its active counterpart (1b), we see that the subject NP of the passive sentence, *this story*, corresponds to the internal argument of the active verb. In chapter 3 we proposed that in both (1a) and (1b) the NP *this story* is assigned the internal theta role by the verb. Internal theta roles are by definition assigned directly under government by the head. Hence, the NP *this story* in (1a) ought to be assigned its theta role under government by the verb *believe*, exactly as in (1b). As it stands, *believe* obviously does not govern the NP *this story* in (1a).

In order to maintain the parallelism between (1a) and (1b) and our hypothesis that internal theta roles are assigned directly by a governing head we developed a movement analysis relating the patterns in (1a) and (1b). We proposed that at some level of syntactic representation the NP *this story* IS the direct object of the verb *believe*:

2a $[_{IP} e [_{I'} \text{ is } [_{VP} [_{V'} \text{ believed } [\text{this story}]] \text{ by the villagers}]]]$.

(2a) is called the **D-structure** of (1a). It encodes the basic thematic relations in the sentence as determined by the argument structure of the predicate, passive *believed*. In (1a) the external theta role of *believed* is not assigned to an NP in the subject position, but it is assigned to an NP in a *by*-phrase. Because of the extended projection principle the subject position in (2a) is generated but is not filled by an argument NP. The empty subject position is indicated by the symbol *e* for 'empty'. In the D-structure (2a) the object NP *this story* is VP-internal and is assigned an internal theta role directly by the governing verb.

In addition to the D-structure representation which reflects lexical properties, a sentence is associated with a second level of representation, **S-structure**, which is closer to the surface manifestation of the sentence, its **surface form**. At this point, we shall equate the surface form of the sentence with S-structure for expository reasons. In chapters 9 and 12 we shall see that S-structure is not necessarily identical with the surface form of a sentence. The S-structure of (1a) is (2b):

2b $[_{IP} \text{ This story}_i [_{I'} \text{ is } [_{VP} \text{ believed } [e_i]] \text{ by the villagers}]]]$


 NOMINATIVE

In (2b) the NP *this story* has been moved from the VP-internal position to the subject position of the sentence. This movement is called **NP-movement**. As a

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result of movement, the VP-internal D-structure position of *this story* is left vacant or empty: it is a gap represented provisionally by *e*. We turn to a discussion of such empty positions in section 2. The link between the gap and the moved NP is indicated by co-indexation. The co-indexation allows us to 'reconstruct' the D-structure of the sentence.

The word-order of (2a) is referred to as the **underlying order**. The S-structure order in (2b) is called the **derived order**: it is an order which results from modifications of the D-structure. Similarly, the NP *this story* in (2b/1a) is referred to as a **derived subject**: it is not a D-structure subject of the sentence (2a). The D-structure position of the NP, i.e. the object position, is called the **base-position**. We say that the NP *this story* is **base-generated** in the object position of the passive V *believed*.

In our discussion in chapter 3 we related the movement of the NP from the object position to the subject position to case theory. For some reason (to which we return in section 3) passive verbs do not assign structural case to their complements. If the NP *this story* were to stay in the object position, it would violate the case filter, as seen in (2c):

2c *There is believed this story by the villagers.

In (2b), *this story* occupies the subject position, where it is assigned NOMINATIVE case by INFL. Our analysis implies that the case filter must apply at S-structure (2b). At the level of D-structure (2a) the NP *this story* is in its base-position where it cannot be assigned case.

When discussing the syntactic structure of a sentence we shall from now on assume that there are two **levels of syntactic representation**: the D-structure and the S-structure. Both levels of representation encode syntactic properties of the sentence. The D-structure encodes the predicate-argument relations and the thematic properties of the sentence. The S-structure representation accounts for the surface ordering of the constituents. We return to the relation between the two levels in section 4.

1.2 Questions

1.2.1 SURVEY

In this section we briefly discuss the representation of the sentences in (3), concentrating on the questions (3b)–(3f).

3a Lord Emsworth will invite Hercule Poirot.

- 3b Will Lord Emsworth invite Hercule Poirot?
 3c Lord Emsworth will invite whom?
 3d Whom will Lord Emsworth invite?
 3e I wonder [whether Lord Emsworth will invite Hercule Poirot].
 3f I wonder [whom Lord Emsworth will invite].

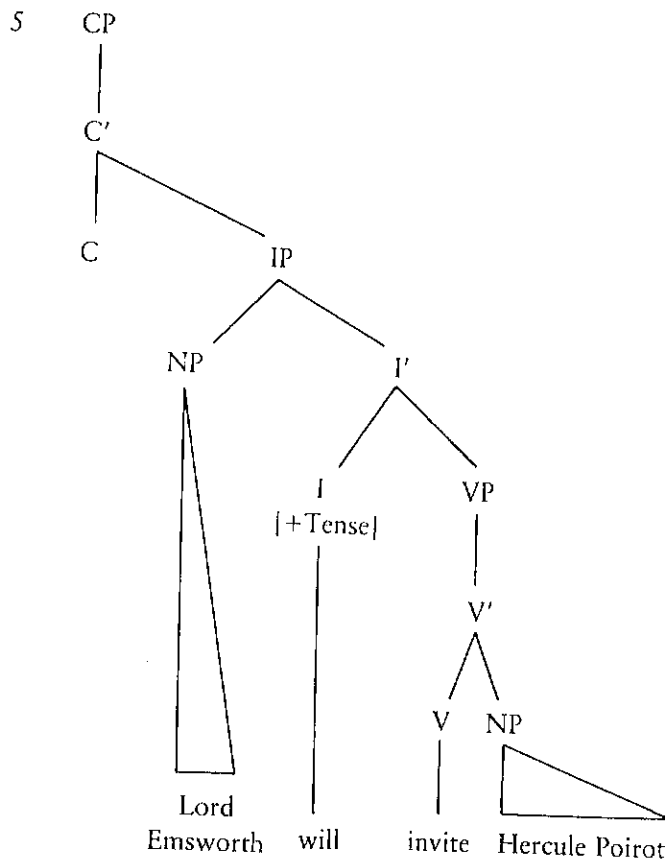
(3a) is a declarative sentence. (3b) is a direct *yes-no* question (to be discussed in 1.2.2), (3c) is an *echo* question (to be discussed in 1.2.3), (3d) is a direct *wh*-question also referred to as a *constituent* question (to be discussed in 1.2.4). For completeness' sake (3e) and (3f) have been added. The bracketed strings in these examples are *indirect questions*: (3e) contains an indirect *yes-no* question; (3f) an indirect *wh*-question. Indirect questions will be discussed in chapter 7, where we return to a full discussion of questions.

From (3a) we infer the argument structure of the verb *invite*:

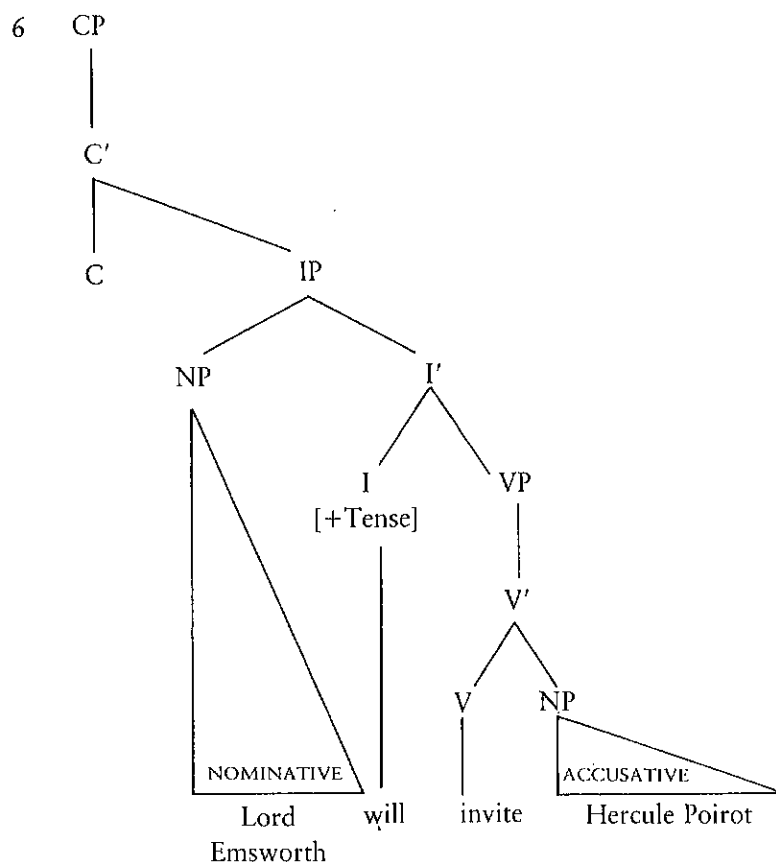
- 4 *invite*: verb

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In (3a) the external argument of *invite* is realized by the NP *Lord Emsworth* and the internal argument is realized by the NP *Hercule Poirot*. The D-structure of (3a) is given in tree diagram format in (5). The external argument of *invite* is syntactically represented by the NP in the subject position of the clause; the internal argument is syntactically represented by the direct object of the V, the NP dominated by V'.



The S-structure representation of example (3a) is given in (6). It does not differ substantially from its D-structure (5). Recall that S-structure is the level at which structural case is assigned: I assigns NOMINATIVE to the subject NP and the verb assigns ACCUSATIVE to the direct object NP.



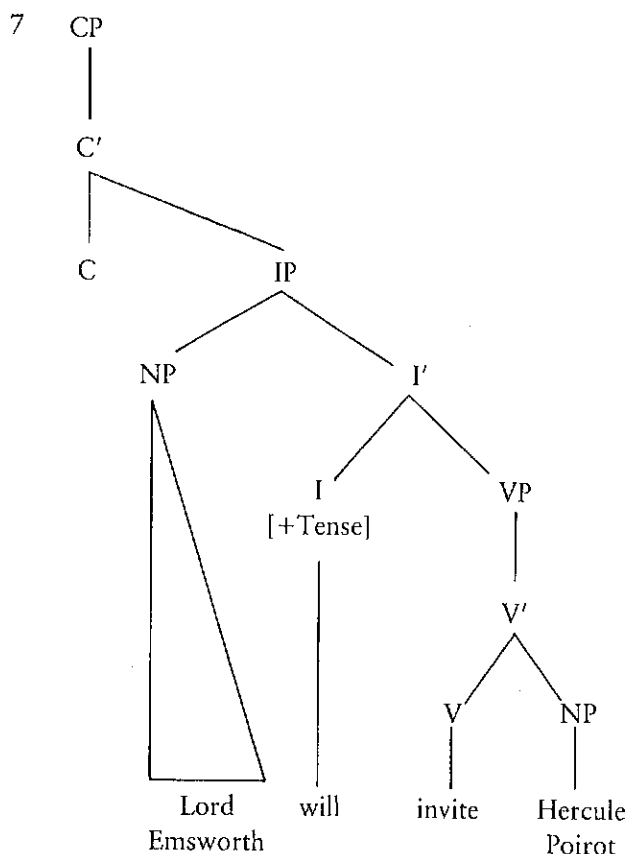
A word of caution is in order at this point. We assume that ALL sentences have two levels of syntactic representation: D-structure and S-structure. In the case of passive sentences such as (1a) discussed above, the D-structure (2a) differs clearly from the S-structure (2b): a constituent has been moved. But, as indicated in (5), and (6) the difference between D-structure and S-structure may be minimal: in this example no movement has taken place and the two levels of representation will not differ in word-order.

1.2.2 YES-NO QUESTIONS

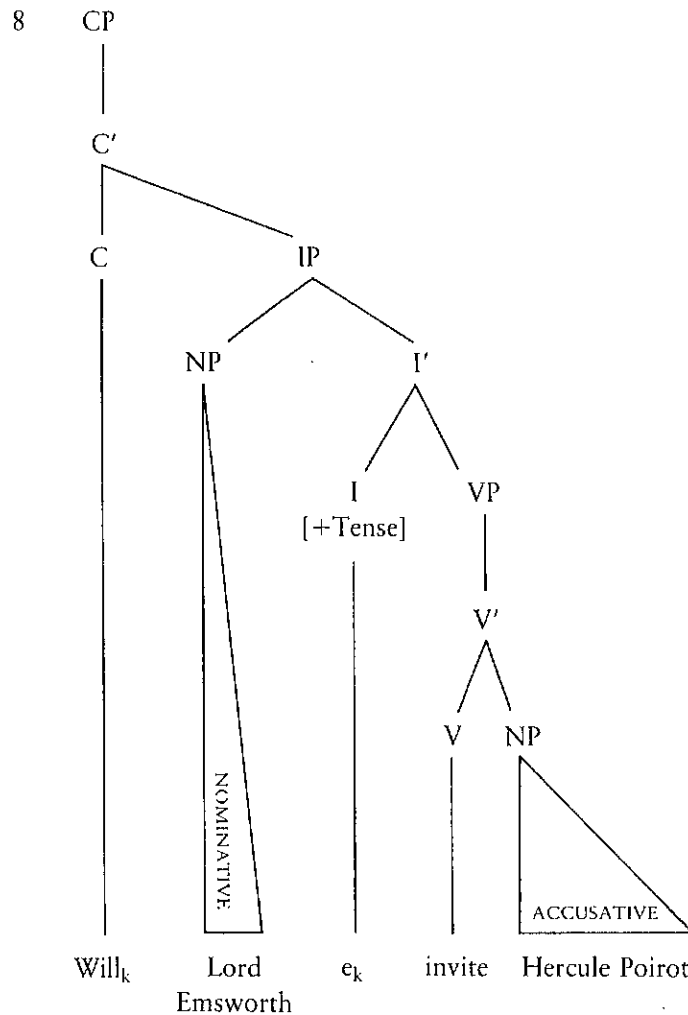
Questions such as (3b) are called *yes-no* questions for the obvious reason that one expects an answer such as *Yes* or *No*. Let us try to work out the syntactic representation of this question, bearing in mind that we need to consider both D-structure and S-structure.

In chapter 2 we saw that sentences are projections of I which in their turn are complements of C. Because they are always specified for tense we assume that

modal auxiliaries like *will* are base-generated in the position dominated by I, as illustrated in (5) and (6) above. One potential problem for the representation of (3b) concerns the surface position of the modal auxiliary *will*, which in our example precedes the subject NP. We assume that the order exhibited in (3b) is not the underlying order of the sentence but a derived order, an order obtained as the result of moving an element. The D-structure position of *will* in (3b) will be as in (7). *Will* is dominated by I, the position which it also occupies in (5):



In our discussion in chapter 2 we proposed that the inverted order auxiliary-subject (cf. (3b)) arises from the fact that the modal auxiliary has been moved out of the base-position, where it is dominated by I, to the vacant position dominated by C. Under this analysis, the S-structure of (3b) is as in (8).



In (8) the gap resulting from moving *will_k* is indicated by *e_k*. The link between the position vacated by *will* and the moved element is again indicated by co-indexation. We shall discuss verb movement in chapter 11.

1.2.3 ECHO QUESTIONS

(3c) is an echo question. It will be used as a reaction to a sentence such as (3a) by a speaker who wishes the interlocutor to repeat (part of) (3a). Echo questions are formed by simply substituting a **question word** (here *whom*) for a constituent. Interrogative constituents such as *whom* are called *wh*-

constituents. *Whom* realizes the internal argument of *invite*. The D-structure of (3c) is as follows:

- 9 [CP [IP Lord Emsworth will [VP invite [NP whom]]]]?

Given that there is no reordering of constituents in echo questions the S-structure of (3c) will be like its D-structure:

- 10 [CP [IP Lord Emsworth will [VP invite [NP whom]]]]?

1.2.4 WH-QUESTIONS

Finally we turn to (3d), a *wh*-question. Unlike echo questions, which are used in the rather specific circumstances discussed above, ordinary *wh*-questions are freely used when a speaker needs some information. The *wh*-constituent *whom* questions one constituent. To (3d) one might expect answers such as 'Hercule Poirot', 'Lord Peter Wimsey', 'Bertie Wooster', 'his mother-in-law', etc. Let us again try to provide the D-structure and the S-structure representations of (3d).

The first question that we need to address here is how the arguments of *invite* are realized. As was the case in the preceding examples, the external argument is realized by the NP *Lord Emsworth*. By analogy with (3c) we would like to say that the internal argument of *invite* is the NP *whom*.

Two problems arise with respect to the internal argument NP. If internal theta roles are assigned directly under government, then, like (1a), (3d) raises the question of how *invite* assigns a theta role to *whom*, which it plainly does not govern. A second and related question concerns the form of *whom*. It is an ACCUSATIVE case. In chapter 3 we argued that ACCUSATIVE case is assigned at S-structure by a governing verb.

The D-structure of (3d) is no different from the D-structure of the echo question (3c) discussed in 1.2.3:

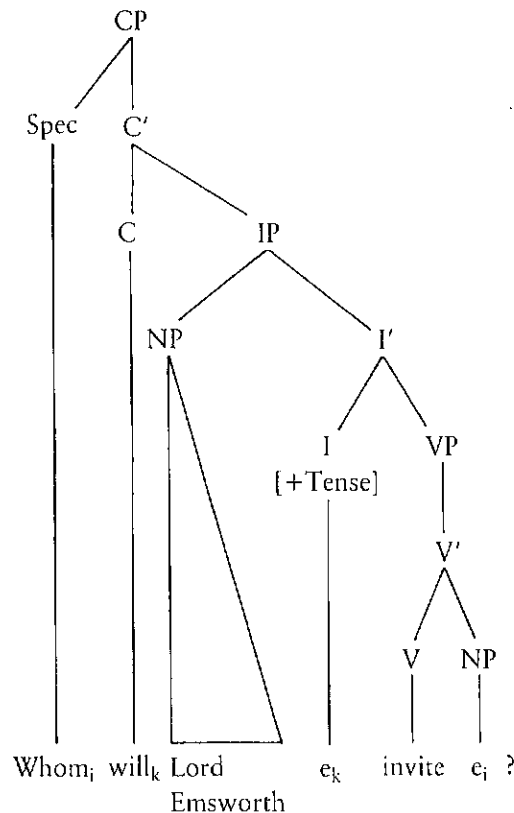
- 11 [CP [IP Lord Emsworth will [VP invite [NP whom]]]]?

At S-structure we assume that, as is the case in (3b), the modal *will* in (3d) is moved to the position dominated by C. As discussed in chapter 2, we further assume that *whom* is moved to the specifier position immediately dominated by CP, [Spec,CP]. The symbol e_i indicates the position vacated by *whom*_i. Co-indexation establishes the link between e and the moved constituent. Movement of question words is referred to as *wh*-movement.

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The problems raised concerning the theta-marking and case-marking of *whom* can now be solved. We will assume that the verb *invite* assigns its internal theta role to the VP-internal position e_i and that it also assigns ACCUSATIVE to this position. In chapter 7 we return in detail to the properties of *wh*-movement.

1.3 Syntactic Representations

Throughout the discussion in this chapter we have been assuming that sentences have two levels of syntactic representation:

(i) D-structure

This level encodes the lexical properties of the constituents of the sentence. It represents the basic argument relations in the sentence. External arguments are base-generated in the subject position relative to

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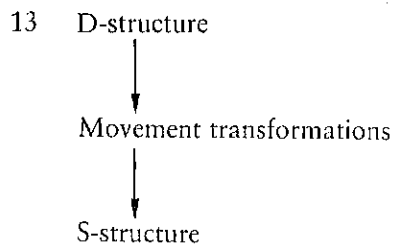
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their predicate;¹ internal arguments are governed by the predicate in their base-position.

(ii) S-structure

This level reflects the more superficial properties of the sentence: the actual ordering of the elements in the surface string, and their case forms.

The two levels of syntactic representation are related to each other by means of movement transformations: elements which originate in some position at D-structure are moved elsewhere at S-structure. Schematically our grammar thus looks as follows:



In section 4 we shall consider the relation between D-structure and S-structure in more detail.

In the discussion above, we have distinguished three types of movement: (i) the movement of auxiliaries from I to C; (ii) *wh*-movement: the movement of *wh*-constituents to the specifier of CP (or [Spec,CP]); and (iii) NP-movement: the movement associated with passive in which an NP is moved to an empty subject position.² In this chapter we discuss NP-movement in more detail. In chapter 7 we turn to *wh*-movement, the discussion of movement from I to C is postponed till chapter 11.

Even at this preliminary stage of the discussion the reader can see that the three types of movements have a lot in common. In each of the movements you take an element and move it somewhere else. In the literature this operation is often referred to in general terms as 'move- α ', **move alpha**, that is 'move

¹ See section 5 for an alternative analysis of the NP in the canonical subject position, though.

² For different proposals concerning the levels of representation see for instance van Riemsdijk and Williams (1981), who posit a level between D-structure and S-structure, Zubizarreta (1987), who introduces a level of lexical structure and Koster (1987), who argues that only one level of representation is needed.

something'. The types of movements discussed can be differentiated on the basis of the target of movement, the element that is moved, and on the basis of the landing site, the position to which an element moves. Two targets are distinguished. Either we move a head of a projection to another head position: in (3b) and in (3d) *will*, the head of IP, moves to C, the head of CP. This is called **head-to-head-movement**. Alternatively, a maximal projection is moved, as illustrated by NP-movement in (1a), and by *wh*-movement in (3d). Chomsky (1986b) argues that in fact movement must be restricted to just these types: either we move a head or we move a full phrase. We return to a discussion of landing sites in chapters 7 and 8.

2 NP-movement

In this section we consider the mechanisms of NP-movement, concentrating mainly on the position vacated by movement: the trace (2.2). We shall see that NP-movement is found not only with passive verbs but also with so-called raising verbs (2.1) and raising adjectives (2.3).

2.1 Introduction: Passive and Raising

As a starting point let us consider the syntactic representations of passive sentences:

- 14a This story was believed by the villagers.
14b Poirot was believed to have destroyed the evidence.

We have already discussed (14a). The D-structure of (14a) is given in (15a) and the S-structure in (15b):

- 15a $[_{IP} e [_{I'} \text{was} [_{VP} \text{believed} [_{NP} \text{this story}] \text{by the villagers}]]]$.
15b $[_{IP} [_{NP} \text{This story}_i] [_{I'} \text{was} [_{VP} \text{believed } e_i] \text{by the villagers}]]]$.

In (15a) the NP *this story* is theta-marked directly by the verb *believed*. The subject position is empty since passive verbs do not assign an external theta

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Let us consider (14b) which also contains passive *believed*. (14b) can be paraphrased by means of (16):

16 It was believed [_{CP} that [_{IP} Poirot had destroyed the evidence]].

In (16) the subject position of the main clause is occupied by an expletive, *it*, which is not assigned a theta role. Passive *believed* takes a sentential complement (the bracketed CP) as its internal argument.

Inside the subordinate clause, the verb *destroy* assigns an internal theta role to the NP *the evidence* and the NP *Poirot* is the external argument which is assigned the AGENT role: 'Poirot is the person who is engaged in the activity of destroying.' Note specifically that the verb in the main clause, *believed*, has no thematic relation with *Poirot*, the subject of the subordinate clause.

The thematic relations in (14b) are identical to those in (16). *Believed* takes as its internal argument a clausal complement, here infinitival. *Poirot*, the surface subject of the main clause, has a thematic relation (AGENT) with the predicate *destroy* in the lower infinitival clause. Again, *Poirot* has no thematic relationship with *believed*. We conclude that in (14b) *Poirot* is a derived subject which is assigned the external theta role of the lower verb *destroy*. On this assumption, the D-structure of (14b) will be (17a), where *Poirot* is base-generated as the subject NP of the infinitival clause:

17a [_{IP} e [_{I'} was [_{VP} believed [_{IP} Poirot to have destroyed the evidence]]]].

Believed directly theta-marks the lower IP. *Poirot* is the external argument of *destroy*, the predicate of the lower infinitival clause. *Believed*, being passive, fails to assign structural case. If the NP *Poirot* were left in the subject position of the lower clause at S-structure it would not be case-marked. This explains the ungrammaticality of (17b):

17b *It was believed Poirot to have destroyed the evidence.

A way of enabling the NP *Poirot* to pass the case filter is by moving it from the subject position of the lower clause to the subject position of the higher clause, leaving a co-indexed gap:

17c $[_{IP} \text{ Poirot}_i [_1' \text{ was } [_{VP} \text{ believed } [_{IP} e_i \text{ to have destroyed the evidence}]]]]$.

Consider now (18). The relation between (18a) and (18b) is exactly parallel to the relation between (16) and (14b).

18a It seems [that [Poirot has destroyed the evidence]].

18b Poirot seems to have destroyed the evidence.

(18a) shows that *seem* is like passive *believe*: it is a one-place predicate which takes a clausal complement. The subject position is not assigned a theta role and it is filled by the expletive *it*. We infer from (18a) that the thematic structure of *seem* is (18c):³

18c *seem*: V

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Inside the complement clause, the NP *Poirot* in (18a) is the external argument of *destroy*.

The thematic relations in (18b) are identical to those in (18a). Again *seem* has the argument structure in (18c). The NP *Poirot* is the external argument of *destroy*. At D-structure *Poirot* is the subject of *destroy*, and the subject position of *seem*, which receives no theta role, is empty. (19a) is parallel to (17a) the underlying structure of (14b).

19a $[_{IP} e \text{ seems } [_{IP} \text{ Poirot to have destroyed the evidence}]]$.

Apart from its argument structure, *seem* shares another property with passive *believe*: it cannot assign structural case:

19b *It/*there seems Poirot to have destroyed the evidence.

³ To indicate that 1 is an internal argument it is not underlined. Recall that we adopted the convention that the external argument is underlined.

(19b) is ungrammatical for the same reason that (17b) is ungrammatical: the external argument of the verb *destroy* is caseless. In order to be able to be theta-marked by *destroy* the NP must be visible, and in order to be visible *Poirot* needs to be case-marked. Movement to the subject position of the main clause brings rescue. (19c) is the S-structure representation of (18b): *Poirot* is a derived subject. (19c) is again parallel to (17c).

19c $[_{IP} \text{ Poirot}_i [_{I'} -s [_{VP} \text{ seem } [_{IP} e_i \text{ to have destroyed the evidence}]]]]$.

(19c) is another example of NP-movement. Because the subject of the lower clause is raised out of the clause and moved into a higher clause, this movement is sometimes referred to as NP-raising or raising. Verbs such as *seem* which induce raising are called raising verbs.⁴

2.2 Traces

We have now discussed three examples of NP-movement. The relevant S-structures are given in (20):

20a $[_{IP} \text{ This story}_i [_{I'} \text{ was } [_{VP} \text{ believed } [e_i] \text{ by the villagers}]]]$.

20b $[_{IP} \text{ Poirot}_i [_{I'} \text{ was } [_{VP} \text{ believed } [_{IP} [e_i] \text{ to have destroyed the evidence}]]]]]$.

20c $[_{IP} \text{ Poirot}_i [_{I'} -s [_{VP} \text{ seem } [_{IP} [e_i] \text{ to have destroyed the evidence}]]]]]$.

In each of these examples we assume that there is a null element in the position vacated by the NP. Co-indexation is used to indicate that the null element and the NP in the matrix subject position are linked. In chapter 3 we introduced the term chain to refer to this link and we shall return to this terminology below. An empty category which encodes the base-position of a moved constituent is referred to as a trace and will be indicated from now on by *t*:

21a $[_{IP} \text{ This story}_i [_{I'} \text{ was } [_{VP} \text{ believed } t_i \text{ by everyone}]]]$.

21b $[_{IP} \text{ Poirot}_i [_{I'} \text{ was } [_{VP} \text{ believed } [_{IP} t_i \text{ to have destroyed the evidence}]]]]]$.

21c $[_{IP} \text{ Poirot}_i [_{I'} -s [_{VP} \text{ seem } [_{IP} t_i \text{ to have destroyed the evidence}]]]]]$.

⁴ For an early discussion of raising, see Postal (1974).

The moved element is called the antecedent of the trace. In the remainder of this section we go through the arguments for positing traces in syntactic representations.⁵

2.2.1 THETA THEORY

A first argument for traces of NP-movement was advanced in chapter 3 and is used in the discussion above. It is based on the discussion of the projection principle and theta theory on the one hand, and of case theory on the other hand.

In chapter 3 we introduced the idea that the case filter is not an independent principle of the grammar but that it derives from the visibility requirement for NPs: in order to be assigned a theta role an NP must be visible. Visibility of overt NPs is achieved via case-marking. Remember that internal theta roles are directly assigned to arguments by the governing head. An external theta role is assigned indirectly to the subject of clause containing the predicate.

In each of the S-structures in (21) the moved NP is visible: it is assigned NOMINATIVE. But the position to which the theta role is assigned is not the derived position but the base-position. In other words, for theta role assignment both the D-structure position and the S-structure position of the NPs in (21) are relevant. The D-structure position is indicated by the trace, it is the position to which the theta role is assigned. The S-structure position is case-marked.

This analysis allows us to maintain theta theory and the visibility principle as discussed in chapter 3. In chapter 3 (section 5.2 (61)) we cited Chomsky's reformulation of the theta criterion as in (22):

22 Theta criterion

- 22a Each argument A appears in a chain containing a unique visible theta position P, and each theta position P is visible in a chain containing a unique argument A (Chomsky, 1986a: 97).
- 22b A position P is visible in a chain if the chain contains a case-marked position (Chomsky, 1986a: 96).

The reader will be able to verify that the conditions for theta role assignment are fulfilled in the S-structures in (21). Consider, for example, (21b). The argument *Poirot* appears in a chain $\langle \text{Poirot}_i, t_i \rangle$. The position occupied by

⁵ The reader will no doubt observe that the argumentation used in 2.2 is similar to that used to justify the presence of PRO in chapter 5, section 1. However, note that PRO does not result from movement. We return to a comparison of PRO and trace in chapter 8.

Poirot is called the head of the chain; that occupied by the trace is called the foot of the chain. The subject position of the non-finite clause, to which the external theta role of the lower verb is assigned, is a theta position. It is visible in the chain $\langle \text{Poirot}_i, t_i \rangle$ because the chain contains a case-marked position: the subject position of the main clause is assigned NOMINATIVE by the finite I. The reader can check that the same conditions obtain in (21a) and in (21c).

2.2.2 THE EXTENDED PROJECTION PRINCIPLE

In chapters 1 and 2 we discussed general principles of phrase structure and we introduced the requirement that sentences must have subjects (the EPP). The EPP requires that the non-finite IPs in (21b) and (21c) have a subject position. In the S-structures in (21b) and (21c) the subject position of the lower clause is occupied by the trace, an empty category (see also section 4.3 below).

2.2.3 LOCAL PROCESSES

In the following examples we find further arguments for positing a trace in the subject position of non-finite clauses such as (21b) and (21c).

- 23a [_{IP} It seems [_{CP} that [_{IP} Poirot has been the best detective/*detectives]]].
- 23b *[[_{IP} Poirot thinks [_{CP} that [_{IP} these schoolchildren are a lousy detective]]].
- 23c [_{IP} Poirot seems to have been the best detective].
- 23d [_{IP} These schoolchildren seem to have been the best detectives].

- 24a It seems [that [the schoolchildren have left together]].
- 24b *The schoolchildren thought [that [Holmes had left together]].
- 24c The schoolchildren seem to have left together.
- 24d *Poirot seems to have left together.

- 25a It seems [that [Poirot has done the job his/*her/*my own way]].
- 25b *I thought [that [Poirot would do the job my own way]].
- 25c Poirot seems to have done the job his own way.
- 25d *Poirot seems to have done the job her own way.

- 26a It seems [that [Poirot has hurt himself/*herself]].
- 26b *I thought [that [Poirot had hurt myself]].
- 26c Poirot seems to have hurt himself.
- 26d *Poirot seems to have hurt herself.

In (23a) the predicate NP *the best detective* must be singular rather than plural. It agrees in number with the subject *Poirot*. (23b) suggests that agreement is clause-bound: *a lousy detective* cannot agree, for instance, with the subject of a higher clause. Without going into the details of agreement rules, let us assume that there is a **clause-mate condition on agreement**.

If we now turn to (23c) and (23d) it appears that the predicate of the infinitival clause agrees in number with the subject of the higher clause. Clearly, one might wish to modify the rule of agreement to allow for this possibility. But on the assumption that there are empty categories we do not need to change our agreement rule at all:

- 27 $[_{IP} \text{ Poirot}_i [_{I'} \text{ -s } [_{VP} \text{ seem } [_{IP} t_i \text{ to be the best detective}]]]]$.

We assume that the NP *the best detective* agrees with the subject of the lower clause, t_i . This means that the trace carries the relevant properties of the antecedent NP, that is, for our example, number. In other words, so-called 'empty' categories are not devoid of properties: they are specified for syntactic features. The term 'empty' refers to the fact that these categories are not associated with phonetic material.

The discussion of the examples in (24)–(26) follows the same lines as that of (23). In (24) the adjunct *together* in the lower clause has to be linked to a clause-mate plural NP (cf. the ungrammaticality of (24b)).⁶ For (24c), we assume that the moved NP *the schoolchildren* is related to *together* via its trace in the lower clause:

- 28 $[_{IP} \text{ The schoolchildren}_i [_{I'} \text{ I } [_{VP} \text{ seem } [_{IP} t_i \text{ to have left together}]]]]$.

(25) suggests that there is a clause-mate constraint on the interpretation of the phrase *his/her . . . own way*. The possessive pronoun in this phrase is like an anaphor in that it is referentially dependent on an antecedent NP in the same clause with which it agrees in person, number and gender (cf. (25a,b)). By positing a trace in the position vacated by the NP *Poirot* we can relate the phrase *his own way* to a clause-mate.

- 29 $\text{Poirot}_i \text{ seems } [_{IP} t_i \text{ to have done the job his}_i \text{ own way}]$.

⁶ Cf. the discussion of PRO in chapter 5, section 1.

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(29) also shows that traces are fully specified for all the nominal features such as person, number and gender.

The examples in (26) should look familiar to the reader. (26b) illustrates a binding theory violation: the reflexive *myself* in the lower clause is not bound in its GC. If we maintain that *seem* takes a clausal complement whose subject position is occupied by a trace in (26c) then we can maintain the binding theory as formulated in chapter 4.

30 Poirot_i seems [_{IP} t_i to have hurt himself_i].

In all the examples above the reasoning is identical. We establish that some rule or principle of grammar (binding, agreement, etc.) is best described in terms of a locality condition. In order to maintain the rule or principle in its simplest form we use the trace of a moved element as the relevant local element in the application of the rule or principle.

2.3 Some Properties of NP-movement

In this section we sum up our discussion of NP-movement so far. In section 2.3.1 we give a catalogue of properties which we have already come across, in section 2.3.2 we examine the configurational relation between the antecedent and the vacated position.

2.3.1 PROPERTIES OF A-CHAINS

(31) provides the typical examples of NP-movement which were the basis for our discussion.

31a [_{IP} This story_i [_{I'} was [_{VP} believed t_i by the villagers]]].

31b [_{IP} Poirot_i [_{I'} -s [_{VP} seem [_{IP} t_i to have destroyed the evidence]]]]].

As suggested above, a distinction is sometimes made between examples such as (31a), which are instances of *passivization*, and examples such as (31b), which are referred to as *NP-raising*.⁷ Passivization moves an object NP to the subject position of the same clause; in raising patterns a subject NP is raised

⁷ The term subject-to-subject raising is also used (cf. Postal, 1974).

from a lower clause to a higher clause. The terms raising and passivization are useful descriptive labels but the reader should not have the impression that passivization and raising are mutually exclusive. In (32a), discussed in section 2.1 as (14b), passive *believed* is a raising verb: the subject NP *Poirot* is moved from the lower infinitival clause to a higher clause. (32b) combines passivization in the lower infinitival IP and raising. This example will be discussed below (see (35b)).

32a [_{IP} Poirot_i [_{I'} was [_{VP} believed [_{IP} t_i to have destroyed the evidence]]]]].

32b [_{IP} This story [_{I'-s} [_{VP} seem [_{IP} t_i to be believed t_i by everyone]]]]].

Let us make a provisional inventory of the common properties of all the examples of NP-movement illustrated here.

- a The moved element is an NP.
- b Movement is obligatory.
- c The landing site of movement is an empty position.
- d The landing site is an A-position.
- e The landing site is an NP-position.
- f The landing site of movement is a position to which no theta role is assigned. Let us call this a **theta-bar position** by analogy with an A-bar position.
- g The landing site of the movement is a position to which case is assigned. In our examples the landing site is the subject position of a finite sentence.
- h The site from which the element is moved is an NP-position to which no case is assigned.
- i Movement leaves a **trace**.
- j The trace is co-indexed with the moved element, the **antecedent**, with which it forms a chain. Because the head of the chain is an A-position, the chain created by NP-movement is called an **A-chain**.
- k The chain is assigned one theta role.
- l The theta role is assigned to the lowest position of the chain: the foot of the chain.
- m The chain is case-marked once.
- n Case is assigned to the highest position of the chain: the **head** of the chain.

The characteristics of A-chains listed above are not all independent. Let us consider some of them here.

That the NP moves obligatorily (a + b) in the examples discussed is due to the fact that it would otherwise be caseless and violate the case filter. Hence,

we do not need to state that NP-movement is obligatory in the passive and raising sentences above.

Both statements (a) and (b) need some qualification. Consider (33):

- 33a Everyone believed [_{CP} that Poirot would give up].
 33b It was believed by everyone [_{CP} that Poirot would give up].
 33c [_{CP} That Poirot would give up] was believed by everyone.

In (33a) active *believed* takes a clausal complement. In (33b) the verb is passivized; the complement has not moved. In (33c) the clausal complement is moved.⁸ In this example movement affects CP rather than NP. We see that it is not obligatory: CPs, unlike NPs, are not subject to the case filter, hence CP may remain in its base-position in (33b).

Movement is to an empty position (c). Intuitively this is reasonable. Suppose an NP were to move into a position already occupied by another NP. Clearly this would result in some sort of a clash. The principles we have established so far enable us to account for this property.

Let us assume that there were a putative verb *HIT* which takes an external and an internal argument but which, unlike English *hit*, does not assign ACCUSATIVE case. We will project a D-structure like (34a):

- 34a [_{IP} John [_{VP} HIT Mary]].

In (34a) *Mary* is assigned the internal theta role of *HIT* and *John* is assigned the external theta role. The NP *Mary* will be caseless if left in place at S-structure. Suppose it were to move into the position occupied by *John*:

- 34b [_{IP} Mary_i [_{VP} HIT t_i]].

Mary is assigned NOMINATIVE case and forms a chain with its trace. At S-structure *HIT* will assign its internal theta role to the visible chain <Mary_i, t_i>.

What about the external theta role? If *HIT* were to assign it to *Mary_i* then the chain <Mary_i, t_i> would have two theta roles in violation of the theta criterion (22). If *HIT* failed to assign its external theta role then again the theta criterion is violated since one theta role is now unassigned. We conclude that it

⁸ We assume here that CP is moved to [NP,IP]. Koster (1978b) argues against this hypothesis.

is not possible for an NP to move into a position already occupied by another NP. This means that there can be no verb like *HIT*, which assigns both an external and an internal theta role and fails to assign case to its complement. We return to types of verbs in section 3 below.

The reader can work out for himself that movement of an NP will also have to be to a theta-bar position (cf. property (f)).

Do NPs always move to positions in which case is assigned? (see property (g)). Yes and no. Consider:

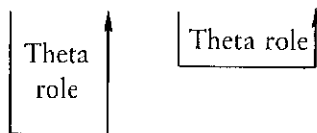
35a It seems [that [this story is believed by everyone]].

35b This story seems to be believed by everyone.

(35a) is straightforward: *seem* takes an internal clausal argument and lacks an external argument. *Believed* in the lower clause is passivized and assigns its internal theta role to the NP *this story*. We invite the reader to provide the D-structure and S-structure representations for (35a).

(35b) is a paraphrase of (35a). *This story* is the internal argument of *believed*. The subject position of *believed* is unoccupied at D-structure, though it must be present in view of the EPP. *Seem* also lacks an external theta role (cf. (35a)): the subject position of the higher clause is generated empty at D-structure:

36 [_{IP} [_{I'}-s [_{VP} seem [_{IP} to be believed this story . . .]]]



In its VP-internal base-position, *this story* cannot be assigned case. Hence it will move. The subject position of the lower IP cannot serve as the ultimate landing site for the movement since this is also a caseless position: we have proposed that *seem* does not assign ACCUSATIVE case.

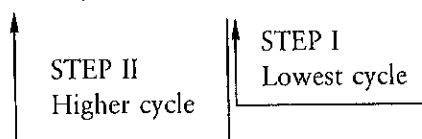
We might propose that the NP *this story* moves in one fell swoop to the subject position of the higher clause. This would mean that it can cross an IP. We shall see in section 4.5.2 that this is not possible for independent reasons. Consider (37a) with the S-structure (37b):

37a *John seems that it is believed by everyone.

37b *John_i [_{I'}-s [_{VP} seem [_{CP} that [_{IP} it is believed t_i by everyone]]]].

In (37b) the idea is that the lower subject position is filled by an expletive, and that the NP *John*, the internal argument of *believed*, is moved directly to the subject position of the higher clause where it receives NOMINATIVE case. The ungrammaticality of (37a) suggests that NPs cannot escape from their own clause and move to the subject position of a higher clause. Movement of an NP must be 'local' in a way yet to be made precise. Let us adopt this descriptive statement without further motivation for the moment and assume that the NP *this story* in (35b) moves first to the subject position of *be believed* and then to the subject position of the higher clause. There are two stages or cycles for the movement transformation. The first cycle for the operation of move-alpha (cf. section 1.3 for the term) is the lowest clause. The second cycle includes the next higher clause, and so on. We assume that each of these movements leaves a trace in the vacated site and that all traces are co-indexed with the antecedent, and thus with each other:

38 This story_i seems [_{IP} t'_i to be believed t_i by everyone].



We shall say that movement of *this story* is cyclic: it goes step by step creating intermediate traces until we arrive at the final landing site. We indicate the intermediate trace with a prime notation. The chain created by NP movement in (38) has three members: $\langle \text{this story}_i, t'_i, t_i \rangle$. The head of the chain is *this story_i*, the foot is the trace *t_i*.

Returning to our question concerning the landing site of NP-movement, we conclude that NP-movement ultimately moves the NP into a position which is case-marked: the head of the chain is case-marked (properties (m) and (n)). Indeed, this is only natural since we saw that the NP must move precisely to become case-marked (properties (a) and (b)).

The discussion of the properties of movement developed in this section is important from the point of view of language acquisition. We have proposed that a speaker of the language has some internal grammar. If our grammar is a representation of this internal knowledge then the properties of NP-movement which we have postulated must be 'known' to the native speaker. From the discussion it follows that the properties listed above do not have to be learnt one by one. They are descriptive statements which can be deduced from more general principles of the grammar. If a child has the general principles (theta theory, case theory, the projection principle, X-bar theory, etc.) at his disposal,

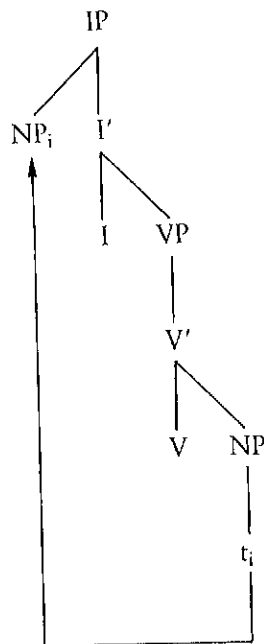
the individual descriptive statements listed above follow. As an exercise we invite the reader to try to derive the remaining properties listed above on the basis of the theory established so far.

A word of caution is in order: in this section we deal with NP-movement exclusively. We shall see in chapter 7 and in chapter 11 that other types of movement have properties distinct from those listed above.

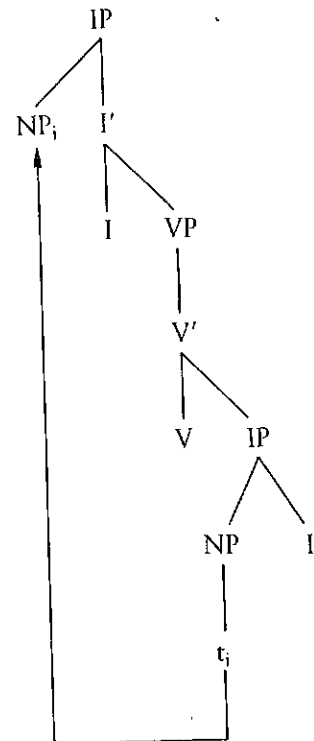
2.3.2 C-COMMAND

In section 2.3.1 we have looked at several examples of NP-movement for which we have identified a set of common properties. We have discussed examples in which NPs move from a VP-internal position to the subject position of a sentence, or instances where an NP is moved from a subject position of a lower clause to the subject position of a higher clause. Schematically NP-movement operates as in (39):

39a



39b



NPs are moved upwards. If we examine the configurational relationships between the antecedent and the trace in these representations we see that the

antecedent *c*-commands the trace. We return to this property of movement in section 4.5.1.

2.4 Raising Adjectives

So far we have only looked at examples of NP-movement induced by raising verbs or passive verbs. In this section we show that adjectival predicates too may induce raising. Consider (40):

40a It is likely [_{CP} that John will leave].

40b John is likely to leave.

The main clause subject position in (40a) is occupied by an expletive, hence we conclude that *likely* takes one argument, realized here as CP, and fails to assign an external theta role. In (40a), *John* is assigned a theta role by the lower verb *leave*. *John* has no thematic relation with the adjective *likely*.

(40b) is a paraphrase of (40a). *John* is again an argument of *leave*, and has no thematic relation with the adjective *likely*; in (40b) *John* is in a derived position. Its base-position is the subject position of the lower clause: (41a) is the D-structure representation of (40b) and (41b) its S-structure:

41a [_{IP} e is likely [_{IP} John to leave]].

41b [_{IP} John_i is likely [_{IP} t_i to leave]].

We have treated the adjective *likely* in exactly the same way as the raising verb *seem*. *Likely* is referred to as a **raising adjective**. Another example of raising adjectives is *certain* in (42).

42a It is certain that the weather will change.

42b The weather is certain to change.

One might infer that all modal adjectives are raising adjectives. This conclusion would be wrong, though. *Probable*, for instance, which is near-synonymous to *likely*, does not allow the subject of the lower non-finite clause to raise to the higher subject position:

43a It is probable that John will leave.

43b *John is probable to leave.

3 Burzio's Generalization

3.1 Case-Marking and Argument Structure

In the preceding section we mentioned two properties of passive constructions in English.

- (i) Absorption of the case assigning properties of the verb: a passive verb fails to assign structural case to the complement NP; this NP has to move to a position in which it can be case-marked.
- (ii) Absorption of the external argument of the verb: the D-structure subject position is generated empty.

We have postulated that raising verbs are like passive verbs in that they (i) fail to assign structural case and (ii) lack an external argument.

Luigi Burzio (1986) has related these two properties by the descriptive generalization in (44a) which is schematically summarized in (44b):

44a Burzio's generalization

- (i) A verb which lacks an external argument fails to assign ACCUSATIVE case (Burzio, 1986: 178–9).
- (ii) A verb which fails to assign ACCUSATIVE case fails to theta-mark an external argument (Burzio, 1986: 184).

44b $T \longleftrightarrow A$ (Burzio, 1986: 185)

Where T stands for theta-marking; A stands for ACCUSATIVE. The leftward placement of T is important: it represents the external theta role, assigned to the left of the VP in English.

In this section we look at Burzio's general classification of verbs. (45) gives a survey of three possible argument structures for verbs.

45a VERB 1:

1	2

45b VERB 2:

<u>1</u>

45c VERB 3:

2

A verb with the theta grid in (45a) is traditionally called a transitive verb: it is a verb which has two arguments and assigns two theta roles, e.g. *abandon* (which assigns the roles of AGENT and THEME) or *fear* (which assigns EXPERIENCER and THEME). Such a verb must be able to case-mark its complement NP. If a transitive verb failed to case-mark the object, then it would be like the putative verb HIT discussed in 2.3.1 above. We have seen that such verbs do not exist.

(45b) is the thematic grid of an intransitive verb: a verb which has only an external argument, such as *work* (which assigns the external role of AGENT). The D-structure and S-structure representations of sentences containing such intransitive verbs will be, schematically, as in (46a) and (46b) respectively:

46a [IP NP [_{I'} [_{VP} V]]]46b [IP NP [_{I'} [_{VP} V]]]

We see that the S-structure is isomorphic in the relevant respects to the D-structure. According to Burzio's generalization verbs of this kind could case-mark a complement NP. Since these verbs lack an internal argument, they will not take an NP-complement, though, and their case-marking potential will not need to be activated.⁹

The third class of verbs with the theta grid (45c) is the one that we shall look into now. This class contains verbs which only have an internal argument. The most obvious examples of such verbs that we have already come across are

⁹ Cf. the discussion of this point in Burzio's own work (1986: 184).

passive verbs. We have seen that as a result of passivization the external argument becomes suppressed. Verbs of the third class will be generated in a D-structure like (47a):

47a $[_{IP} e [_{I'} [_{VP} VERB_{pass} NP]]]$

Following Burzio's generalization, the VERB in (47a) cannot assign ACCUSATIVE case to its complement. This is in line with our discussion: we have said that passive verbs fail to assign structural case. At S-structure the NP to which the internal theta role is assigned will have to move to the subject position to be case-marked:

47b $[_{IP} NP_i [_{I'} [_{VP} VERB t_i]]]$

Verbs which lack an external argument and therefore cannot assign ACCUSATIVE case to their complement-NP will from now on be referred to as *unaccusative* verbs. We shall see presently that not only passive verbs belong to this class.

The surface strings of the S-structures (46b) and (47b) will be similar, the trace in (47b) having no phonetic content. On the surface a sentence with an unaccusative verb of class 3 will look like a sentence with an intransitive verb of class 2. One of the important consequences of this analysis is that verbs that are one-place predicates in fact are to be divided into two groups: intransitive verbs with only an external argument (VERB 2) and unaccusative verbs with only an internal argument (VERB 3). We turn now to some empirical motivation from Italian for this claim.

3.2 *Unaccusatives in Italian*

Burzio's research relied initially on the study of Italian verbs and we shall discuss some of the essential data in this section. For further discussion the reader is referred to Burzio's own work (1986).

Consider the following examples:

- 48a Giacomo telefona.
Giacomo telephones.
48b Giacomo arriva.
Giacomo arrives.

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Both *telefonare* and *arrivare* are one-argument verbs but a cluster of properties distinguishes them. We look at two of these properties here: *ne*-cliticization and auxiliary selection.

3.2.1 NE-CLITICIZATION

The basic facts of *ne*-cliticization in Italian are illustrated in the following examples:

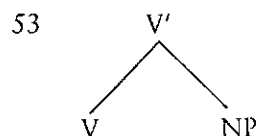
- 49a Giacomo ha insultato due studenti.
'Giacomo has insulted two students.'
- 49b Giacomo *ne* ha insultati due.
Giacomo of-them has insulted two
'Giacomo has insulted two.'
- 50a Giacomo ha parlato a due studenti.
'Giacomo has spoken to two students.'
- 50b *Giacomo *ne* ha parlato a due.
Giacomo of them has spoken to two
'Giacomo has spoken to two.'

A noun head of an NP can become attached to a higher verb as *ne*, leaving its specifier behind. *Ne* is a clitic: a pronominal element which must be attached to a head. The attachment of *ne* to a verb head is referred to as *ne*-cliticization.¹⁰ (50) shows that this is only possible if *ne* is extracted from a post-verbal NP: extraction from a PP produces ungrammaticality. (51) and (52) show that the conditions on *ne*-cliticization are more stringent:

- 51a Giacomo passa tre settimane a Milano.
'Giacomo passes three weeks in Milan.'
- 51b Giacomo *ne* passa tre a Milano.
- 52a Giacomo resta tre settimane a Milano.
'Giacomo stays three weeks in Milan.'
- 52b *Giacomo *ne* resta tre a Milano.

¹⁰ For further discussion of clitics the reader is referred to chapter 12. For a discussion of *ne*-cliticization see also Belletti and Rizzi (1981).

Ne-cliticization from the NP *tre settimane* is allowed in (51b) and disallowed in (52b). The contrast between the two sentences lies in the function of the post-verbal NP. In (51a) *tre settimane* is a complement of the verb: a direct object. In (52a) the NP *tre settimane* is an *adjunct*. *Ne*-cliticization is restricted to NPs that are complements of V. Such NPs appear in the structure (53):



Before we discuss further data we need to add here that one typical property of Italian sentences is that the subject may appear either pre-verbally or post-verbally; the latter phenomenon is sometimes referred to as *free inversion*. (54b) illustrates free inversion in active sentences with transitive verbs:

54a Il ragazzo ha mangiato un dolce (Belletti, 1988: 7).

The boy has eaten a sweet.

54b Ha mangiato un dolce il ragazzo.

The inverted word-order found in active sentences is also found in passive sentences.

55a Furono arrestati molti studenti.
were arrested many students

55b Molti studenti furono arrestati.

And similarly with one-argument verbs:

56a Molti studenti telefonano.
many students telephone

56b Telefonano molti studenti.

57a Molti studenti arrivano.
many students arrive

57b Arrivano molti studenti.

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In (54b) the post-verbal subject *il ragazzo* follows the direct object NP *un dolce* and is assigned NOMINATIVE case.¹¹ Since the direct object position is occupied already, the inverted subject NP must be in a position somewhere outside the lowest V', which dominates V and its object-NP. Let us say that the post-verbal subject in (54b) is attached to or adjoined to VP (for some discussion of adjunction the reader is referred to section 4.1 below. A full discussion follows in chapter 7).¹²

In passive (55a) we cannot decide immediately whether the post-verbal NP *molti studenti* is inside or outside the lowest V'. Given its interpretation as the internal argument of the verb, *molti studenti* originates in the D-structure object position of *arrestati*. In (55b) the NP is a derived subject. It is moved to the subject position where it is assigned NOMINATIVE case by the finite inflection. In (55a) the NP occurs after the verb. The question is whether the NP in (55a) might still be in its D-structure position, i.e. dominated by V', or whether it is outside V'. Consider the following data of *ne*-cliticization:

- 58 Ne furono arrestati molti.
 of them were arrested many

(58) shows that *ne* can be cliticized from the NP *molti studenti* in (55a). Given the properties of *ne*-cliticization discussed above, we infer that the relevant NP is in the object position (cf. (53)), the position dominated by V'.¹³

¹¹ Various proposals have been formulated to account for the NOMINATIVE case assignment to the post-verbal subject. See, for instance, Belletti (1988), Burzio (1986) and Rizzi (1982).

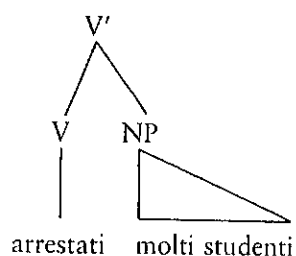
¹² Belletti (1987) proposes that I assigns NOMINATIVE case to the NP *il ragazzo* in (54b).

¹³ Belletti (1988) proposes that the post-verbal NP in the passive sentence in (58) is assigned an inherent PARTITIVE case by the passive verb. Belletti's general thesis is that while passive verbs do not assign STRUCTURAL case they can assign an inherent PARTITIVE. Belletti proposes that PARTITIVE case is only compatible with indefinite NPs. For examples such as (i), where a definite NP occupies the post-verbal position, Belletti adopts the analysis proposed for (54b):

- (i) Fu arrestato il professore.
 was arrested the professor
 'The professor was arrested.'

She proposes that the definite NP *il professore* is not in the position dominated by V', but is adjoined to VP where I can assign NOMINATIVE case. If we adopt the PARTITIVE hypothesis we will have to assume that only indefinite subjects can appear in the position dominated by V'.

59



An interesting contrast appears when we compare the one-argument verbs in (56) and (57), with respect to *ne*-cliticization:

56c **Ne telefonano molti*.

57c *Ne arrivano molti*.

Consider first *telefonare* ('telephone') in (56). As in every Italian finite clause, the subject of the verb may appear either post-verbally or pre-verbally. From the impossibility of *ne*-cliticization (56c), we conclude that the inverted subject in (56b) does not occur in the position dominated by V', but is outside V'.

The situation for *arrivare* is quite different. Again both pre-verbal and post-verbal subjects are allowed but *ne*-cliticization from the post-verbal subject is possible (57c). This leads us to conclude that the NP *molti studenti* in (57b) occupies the position dominated by V'. In other words, the structure of (57b) is like that of passive (59):

60 [IP e I [VP [V' arrivare [NP molti studenti]]]]

Burzio proposes to assimilate verbs such as *arrivare* to the class of passive verbs. These verbs lack an external argument and their sole argument is internal. Thus both passive verbs and verbs such as *arrivare* are assumed to have the argument structure of VERB 3 above:

61 VERB 3:

2

At D-structure the subject position of sentences with these verbs remains unfilled:

62a [IP e furono [VP [V' arrestati [NP molti studenti]]]]

62b [IP e I [VP [V' arrivare [NP molti studenti]]]]

At S-structure there are two possibilities:

- (i) Either the complement of the verb is moved to the subject position to be assigned NOMINATIVE case. The subject is then a derived subject.

63a [IP Molti studenti_i furono [VP [V' arrestati [NP t_i]]]].

63b [IP Molti studenti_i I [VP [V' arrivare [NP t_i]]]].

Movement of the NP to the subject position leaves a co-indexed trace in the vacated position inside V'.

- (ii) Alternatively, the object NP remains in its base-position. The null subject in (64) is non-thematic, it is a non-overt expletive.¹⁴

64a [IP e furono [VP [V' arrestati [NP molti studenti]]]]

64b [IP e I [VP [V' arrivare [NP molti studenti]]]]

Telefonare has a different argument structure. It has only an external argument.

¹⁴ Non-overt expletives are not allowed in English:

- (i) *Arrived three students.
(ii) *Seems that John is ill.

The ungrammaticality of (i) and (ii) is due to the fact that pronominal subjects in English must be overt. In Italian a pronominal subject may be non-overt:

- (iiia) *Speaks English.
(iiib) Parla inglese.

We discuss the nature of the non-overt subject in Italian in chapter 8.

65 VERB 2:

1

The D-structure of sentences (56a) and (56b) will be:

66a [_{IP} Molti studenti [_{I'} I [_{VP} telefonare]]]

Two S-structures are possible. Either the NP *molti studenti* stays in its base-position:

66b [_{IP} Molti studenti [_{I'} I [_{VP} telefonare]]].

Alternatively, the subject appears in a post-verbal position outside V'. The [NP,IP] position is again occupied by a non-overt expletive.

66c [_{IP} I [_{VP} [_{V'} telefonare] molti studenti]].

On the basis of the *ne*-cliticization facts we have concluded that there are two types of verbs which are traditionally called intransitive. Verbs like *telefonare* have an external argument; verbs like *arrivare* have just an internal argument. For the latter class of verbs Burzio's generalization predicts that although they have an internal argument they do not assign ACCUSATIVE case, exactly in the way that passive verbs fail to assign ACCUSATIVE. Verbs of the *arrivare* class are *unaccusatives*.

We have seen that whenever a verb allows *ne*-cliticization from what looks like an inverted subject NP, this NP must occur in the object position, the position dominated by V'. Such a verb will lack an external argument and will not assign ACCUSATIVE case. In (67) we give some more examples.

67a Ne vengono molti.
of them come many

67b Ne vanno molti al concerto.
of them go many to the concert

67c

67d

67e

67f

67g

Th
own
move

3.2.2

We
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tinct

68a

68b

Bu
depe

69

Fe
exar

70a

70b

- 67c Ne tornano molti.
 of them return many
 67d Ne partono molti.
 of them leave many
 67e Ne muoiono molti.
 of them die many
 67f Ne cadono molti.
 of them fall many
 67g Ne entrano molti.
 of them enter many

Though the class of unaccusative verbs is not easily defined (see Burzio's own work for discussion), it appears that it contains primarily verbs of movement and verbs that indicate some state or a change of state.

3.2.2 AUXILIARY SELECTION

We have seen that certain one-argument verbs have only an external argument, while others have only an internal argument to which they cannot assign ACCUSATIVE case. *Ne*-cliticization distinguishes these verbs. Another distinction is the choice of perfective auxiliary:

- 68a Giacomo ha telefonato.
 68b Giacomo è arrivato.

Burzio proposes that the selection of the perfective auxiliary *essere* is dependent on the following condition:

69 *Essere* selection

There is a chain between the subject position and the complement position of the verb (cf. Burzio, 1986: 55).

Following our discussion in 3.2 the S-structure representations of the examples in (68) will be as in (70):

- 70a [_{IP} Giacomo [_{I'} ha [_{VP} telefonato]]].
 70b [_{IP} Giacomo_i [_{I'} è [_{VP} arrivato t_i]]].

In (70b) *Giacomo* has moved to the subject position and has left a co-indexed trace. There is a chain between the moved NP and the vacated position. (70b) fulfils the condition for *essere* selection. In (70a) no movement is assumed and the condition for *essere* selection is not satisfied.

If we return briefly to the other examples of unaccusative verbs listed under (67) we see that these verbs also select *essere* as the perfect auxiliary:

- 71a Roberto è venuto.
- 71b Roberto è andato al concerto.
- 71c Roberto è tornato.
- 71d Roberto è partito.
- 71e Roberto è morto.
- 71f Roberto è caduto.
- 71g Roberto è entrato.

Passive verbs are also unaccusative: they also meet the condition for *essere* assignment in (69):

- 72 Notevoli danni sono stati arrecati alla chiesa.
Important damage has (lit. are) been caused to the church.

3.3 One-argument Verbs in English

Let us try to see if Burzio's analysis of the one-argument verbs carries over to English. We have already discussed the passive verbs. The crucial properties of these verbs are that (i) they fail to assign an external theta role, i.e. they lack an external argument, and that (ii) they do not assign ACCUSATIVE case to their complement. Can other verbs be considered unaccusatives along the lines of the Italian verbs of the *arrivare* group?

3.3.1 RAISING PREDICATES

Raising verbs also belong to the class of unaccusatives. Consider the S-structures in (73):

- 73a [_{IP} Poirot_i [_{I'} was [_{VP} believed [_{IP} t_i to have destroyed the evidence]]]].
- 73b [_{IP} Poirot_i [_{I'} -s [_{VP} seem [_{IP} t_i to have destroyed the evidence]]]].

We have discussed the derivation of (73a) and (73b) in section 1.1. The verbs *believed* and *seem* take one internal clausal argument and do not assign an

external theta role to the subject position. For both verbs we have also said that they cannot assign an ACCUSATIVE case to the subject position of the lower infinitive.

We now see that the properties attributed to these verbs are captured by Burzio's generalization: passive and raising verbs lack an external argument and they consequently fail to assign ACCUSATIVE case.

3.3.2 VERBS OF MOVEMENT AND (CHANGE OF) STATE

We may wonder whether the English verbs of movement and (change of) state are like their Italian counterparts of the *arrivare* class. Remember two crucial features of verbs of the *arrivare*-class: they allow *ne*-cliticization from the post-verbal subject and they select *essere* as a perfect auxiliary. In present-day English there is no choice of auxiliary for the perfect, this being invariably *have*, and there is no equivalent to *ne*-cliticization, so the diagnostics introduced are not immediately applicable.

A consideration of the history of the language throws some light on the issue. While modern English uses only *have* as a perfective auxiliary, older stages of the language had both *have* and *be*. At those earlier stages verbs of movement and change of state like *come*, *go*, *return*, *grow*, *die*, *fall* formed their perfective forms by means of *be*:

74a Se halga faeder waes inn agan.
the holy father was in gone
'The holy father had gone in'.
(Quirk and Wrenn, 1957: 78)

74b Is nu geworden.
(it) is now become
'It has happened'.
(Quirk and Wrenn, 1957: 79)

Present-day English still allows the form in (75) (cf. 74a):

75 Poirot is gone.

From earlier stages of the language we obtain indirect support for the idea that verbs of movement and change of state are unaccusative verbs like their Italian counterparts of the *arrivare* class.

Another argument can be obtained from present-day English and concerns the use of the expletive *there*. We have briefly discussed existential sentences such as (76) and (77) in chapter 1:

76a Three men arrived at the palace.

76b There arrived three men at the palace.

77a Three students came to the party.

77b There came three students to the party.

In (76a) the subject precedes the verb *arrived* while in the existential pattern (76b) it follows it and the expletive *there* occupies the [NP,IP] position. It is clear, though, that the existential pattern cannot be used with every verb in English.¹⁵

78a Three men bought a book.

78b *There bought three men a book.

79a Three men slept in the room.

79b *There slept three men in the room.

Transitive verbs are excluded (78b). Only a subset of one-argument verbs allows the construction, as indicated by the ungrammaticality of (79b). A closer look at these and other examples suggests the following descriptive generalization: the *there* construction is restricted to one-argument verbs of movement and (change of) state. In addition to the verbs given above, Burzio (1986: 159) mentions: *arise, emerge, ensue, begin, exist, occur, follow*. The Italian counterparts of these verbs (*sorgere, emergere, succedere, cominciare, esistere, accadere, seguire*) all pattern like *arrivare*.¹⁶

We shall follow Burzio in assuming that the English verbs of movement and of (change of) state listed above are also unaccusatives, i.e. fail to assign ACCUSATIVE case and lack an external theta role.

3.3.3 ERGATIVE-CAUSATIVE PAIRS

A group of verbs in English have properties which have led some linguists to treat them as unaccusatives.

¹⁵ See Belletti (1988) for a discussion of the existential construction. For further discussion of the existential construction in Germanic see Haegeman (forthcoming: chapter 4).

¹⁶ See Burzio (1986: 160–1) for discussion though.

- 80a The enemy_i sank the boat_j.
 80b The boat_j was sunk.
 80c The boat_j sank.

The argument structure for active *sink* is given in (81a). We have specified the theta roles and we have entered the relevant indices in the theta grid of the verb to indicate which NP realizes which argument:

81a *sink*: verb

1 AGENT	2 THEME
i	j

In (80b) passive *sink* has the argument structure (81b):

81b *sunk*: verb

2 THEME
j

For by now familiar reasons we propose (82a) as the D-structure and (82b) as the S-structure of (80b):

- 82a [_{IP} e [_{I'} was [_{VP} [_{V'} sunk [_{NP} the boat]]]]]
 82b [_{IP} The boat_j [_{I'} was [_{VP} [_{V'} sunk [_{NP} t_i]]]]].

In (80c) the NP *the boat* has the same thematic relation to the verb as in (80b): *the boat* is the THEME, the thing that is affected by the activity. One might assume that *sink* in (80c), although active, has an argument structure similar to that of a passive verb, i.e. that *sink* in (80c) is an unaccusative verb.

82c *sink*: verb

2 THEME
j

On this assumption, (80c) would have the D-structure (83a) and the S-structure (83b):

83a $[_{IP} e [_{I'} \text{past} [_{VP} [v' \text{sink} [_{NP} \text{the boat}]]]]]$ 83b $[_{IP} \text{The boat}_j [_{I'} \text{past} [_{VP} \text{sink} [_{NP} t_j]]]]$.

In (83a) the NP *the boat* is base-generated as the object of *sink*; at S-structure it becomes a derived subject. The two argument structures correlate with a semantic difference between two uses of *sink*. (80c) merely encodes that some object (the boat) is engaged in some activity (the sinking). In (80a) the external argument specifies who is responsible for the sinking: (80a) is equivalent to 'the enemy made the boat sink' or 'the enemy caused the boat to sink'. In view of the element of causation involved in the interpretation of *sink* in (80a), this use of the verb is referred to as the *causative* pattern.

There are two reasons for not referring to *sink* in (80c) as an unaccusative verb. First, unlike *arrive*, *sink* has a transitive pendant which does assign ACCUSATIVE:

84a The enemy sank the ship.

84b *I arrived the baby to the crèche.

Second, unlike the unaccusative verbs of movement and (change of) state mentioned above, *sink* does not appear in the *there*-construction:

85a There came three new sailors on board.

85b *There sank three ships last week.

On the basis of these two criteria it seems reasonable to argue that *sink* (and verbs which pattern like it) is not an unaccusative verb. Other verbs that pattern like *sink* are *open*, *close*, *increase*, *break*, *drop*:

- 86a Poirot opened the door.
86b The door opened.

- 87a Poirot closed the door.
87b The door closed.

- 88a The police have increased the activities.
88b The activities have increased.

- 89a Poirot broke the vase.
89b The vase broke.

- 90a The boy dropped the vase.
90b The vase dropped.

Rather than claiming that these verbs have the theta structure in (82c) we shall propose that they are intransitive verbs which project their THEME argument in the subject position at D-structure:

- 91 *sink*: verb

<u>1</u> THEME
j

The D-structure of (80c) will not be as in (83a) but will be:

- 92 [_{IP} the boat_i [_{I'} past [_{VP} sink]]]

In this book the term unaccusative is used for passive verbs, raising verbs and verbs of movement and (change of) state, and we shall refer to one-

argument verbs like *sink* as ergatives.¹⁷ The classification of verbs as unaccusative/ergative is a matter of ongoing research. Many authors do not make any distinction between the terms, or consider verbs with transitive pendants like *sink*, which we label ergatives, as unaccusatives. The reader is referred to the literature for details.

4 Levels of Representation and Principles of the Grammar

In this chapter we have developed the hypothesis that all sentences are associated with two syntactic representations: D-structure and S-structure. In this section we discuss the relation between these levels and we shall give an overview of how the principles of grammar established in previous chapters apply to them.

4.1 The Structure Preserving Principle

There is an important constraint on the relation between syntactic representations: structures established at D-structure must be preserved at S-structure: transformations are **structure preserving**.

If a syntactic position is required at D-structure it will be present at S-structure as well. For instance, a position which is required by the projection principle at D-structure will also be present at S-structure. A position projected as a certain category at D-structure cannot change its category at S-structure: NP-positions remain NP-positions, I remains I, etc. A D-structure NP-position, for example, cannot be turned into a PP-position at S-structure. If we adopt the hypothesis briefly alluded to at the end of chapter 2 that syntactic category labels represent bundles of features ($[\pm N]$, $[\pm V]$) then we conclude that features assigned at D-structure are preserved, i.e. they do not change. If NPs are furthermore assigned the features $[\pm \text{anaphor}]$, $[\pm \text{pronominal}]$ then

¹⁷ In so doing we depart from Burzio's own analysis (1986) and we follow a suggestion in work by Belletti (1988: 4, 14), based on Hale and Keyser (1986, 1987). Obviously, the same type of analysis will also apply to the equivalents of the ergatives in other languages.

these features too are expected to be invariant between D-structure and S-structure. This point becomes relevant in chapter 8.

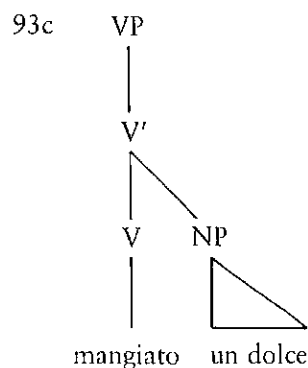
The structure preserving principle also has consequences for movement. One constraint which it imposes on movement is that phrasal projections must move into positions which are themselves labelled as phrasal projections. NPs, for example, must not move into positions dominated by lexical categories (such as N) or intermediate phrasal categories (N'). Heads such as I must move into other head positions.

Second, movement will have to respect syntactic categories. For example, NPs can move into NP-positions without problem, but they will not be able to move into a position labelled AP. This does not mean that NPs must move to NP-positions. Provided all other principles of the grammar are respected, NPs will also be allowed to move to positions which are not specified for a syntactic category (see the discussion of *wh*-movement in chapter 7). The structure preserving principle does not prevent that a moved element is given a new position at S-structure, a position that does not exist at D-structure, as long as the new position created respects the principles of phrase structure. Such a move would not violate the principle that structure must be preserved.

Consider, for instance, the example of free subject inversion in Italian, illustrated in (3.2.1) as (54) and repeated here as (93).

- 93a Il ragazzo ha mangiato un dolce.
 the boy has eaten a sweet.
 93b Ha mangiato un dolce il ragazzo.

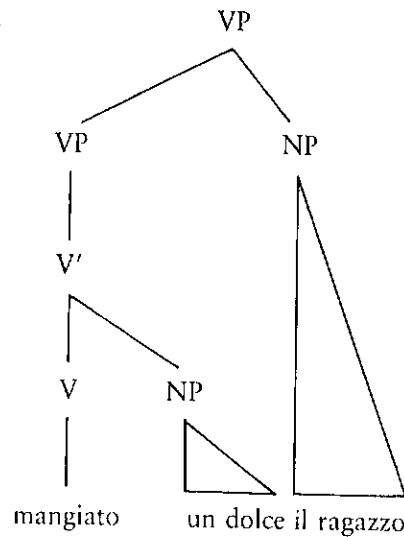
The VP of (93a) is as in (93c):



In (93b) the subject NP occurs post-verbally. We assume that the D-structure (93b) is like that of (93a), i.e. the VP contains the verb and its internal

argument. At S-structure the subject NP must be moved somewhere to the right of the VP. It is proposed in the literature that the NP is adjoined to the VP node:

93d



The S-structure in (93d) is not incompatible with the structure preserving principle: all structure assumed at D-structure (93c) is preserved unaltered. We return to adjunction structures in chapter 7.

4.2 The Theta Criterion

In 2.2.1 we discussed the application of theta theory to the two levels of representation.

D-structure is a representation of lexical properties. D-structure representations are subject to the theta criterion: all syntactic arguments of the predicates must be realized. Moreover we must not randomly generate arguments (say NPs) which cannot be associated with any predicate since they will fail to receive a theta role.

S-structure encodes the result of movement transformations. The structure preserving principle will also entail that movement leaves traces since positions created at D-structure must be preserved. Traces of movement form a chain with their antecedent. If we redefine the theta criterion in terms of chains (cf. (22)) we can maintain that the theta criterion also applies at S-structure, as discussed above.

4.3 The Extended Projection Principle

The EPP is another principle regulating syntactic structure which applies at all levels of syntactic representation: sentences must have subject positions, [NP,IP] positions, at all syntactic levels. It is important to point out here that the EPP imposes that the [NP,IP] position be generated. The EPP does not impose that this position be filled by overt elements: we have already seen that it may be filled by a trace or by PRO. Also, the EPP does not require that the [NP,IP] position be filled by arguments: we have seen that sometimes it is filled by an expletive element. Given the structure preserving principle discussed in 4.1 it follows that if the EPP forces us to generate an [NP,IP] position at D-structure, this position is also present at S-structure.

4.4 The Case Filter

Throughout this chapter we have been assuming that the case filter applies at S-structure (cf. section 1.1). NPs do not need to be assigned case at D-structure. Structural case is assigned at S-structure.

This does not mean that at D-structure NPs must be caseless. All we are saying is that case is not **checked** at D-structure. In chapter 3 we adopted the idea that inherent case is associated with theta roles as a lexical property. The German DATIVE in (94a) was taken to be an inherent case. The verb *helfen* is assumed to have the lexical structure in (94b):

- 94a Poirot hilft ihm.
Poirot helps him-DATIVE

- 94b *helfen*: verb

<u>1</u>	2 DATIVE

If D-structure is a representation of lexical structure then we can assume that the DATIVE will be assigned to *ihm* at D-structure. As seen before, inherent case is unaffected by passivization.

- 94c Ihm wurde geholfen.
 him was helped
 'He was helped.'
 94d *Er wurde geholfen.
 he (NOM) was helped

Bel
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96a

96b

96c

4.5 The Binding Theory

4.5.1 LEVEL OF APPLICATION

In chapter 4 we discussed the module of the grammar responsible for the interpretation of NPs: the binding theory. At that point in the discussion we were not worried about levels of representation. We simply looked at sentences, pretending there was a unique syntactic representation associated with them. Now life is more difficult: we have two levels of representation and we may well ask at which point the binding theory (BT) is supposed to apply.

In order to decide at which level the BT applies we examine the application of the BT in examples in which movement has taken place. We shall consider first the application of Principle A and then that of Principles B and C.

The standard example that is often used to illustrate the application of Principle A is (95).

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96

- 95 They seem to each other to be intelligent.

The D-structure of (95) is (95a) and its S-structure is (95b):

- 95a [_{IP} e seem to each other [_{IP} they to be intelligent]].
 95b [_{IP} They_i seem to each other_i [_{IP} t_i to be intelligent]].

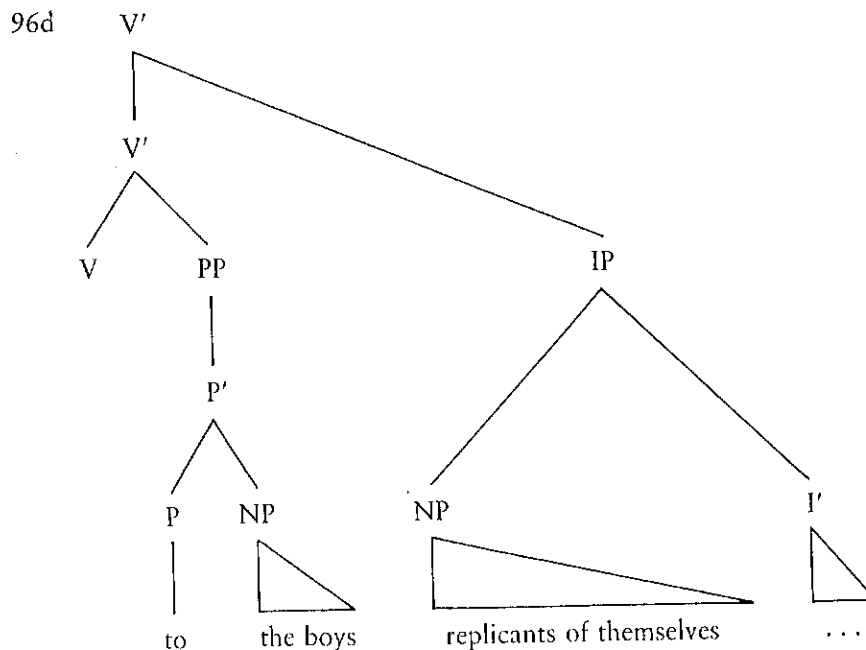
Principle A of the BT requires that anaphors such as *each other* be bound in their GC. The GC of *each other* is the matrix clause. In the D-structure (95a) *each other* cannot be bound in its GC since there is no NP available to bind it. The correct binding configuration arises at S-structure: the derived subject *they* can bind the anaphor:

- 95c [_{IP} They_i seem to each other_i [_{IP} t_i to be intelligent]].

Belletti and Rizzi claim that (95) only shows 'that Principle A can be fulfilled at S-structure, not that it cannot be fulfilled at D-structure' (1988: 313). They include in the discussion examples such as (96):

- 96a Replicants of themselves seemed to the boys to be ugly.
 (from Johnson, 1985, quoted in Belletti and Rizzi, 1988: 316)
- 96b D-structure
 [_{IP} e seemed to the boys [_{IP} replicants of themselves to be ugly]]
- 96c S-structure
 [_{IP} [Replicants of themselves]_k seemed to the boys [_{IP} t_k to be ugly]].

In (96a) the reflexive *themselves* is referentially dependent on the NP *the boys*, hence we expect it is bound by it. At S-structure (96c) the anaphor is not c-commanded by the antecedent *the boys*, hence is not bound by it. Belletti and Rizzi argue that D-structure (96b) stands a better chance of satisfying Principle A. However, even here there will be problems. It is not immediately clear how the NP *the boys*, which is a complement of the preposition *to*, can c-command the reflexive even at D-structure. The reader can verify for himself that the first branching node dominating the NP *the boys* will be the PP node dominating *to the boys*. One might try to circumvent the problem by saying that the PP node somehow does not count.



Another problem with the example is that it illustrates reflexives associated with what are called *picture*-NPs. Such NPs are known to be problematic for the BT.¹⁸ Consider for instance (97):

97 This is a picture of myself which was taken years ago.

In (97) the reflexive *myself* lacks an antecedent and still the sentence is grammatical. Because of their special behaviour it is sometimes proposed that *picture*-NPs be treated separately from other NPs with respect to the BT. Rizzi and Belletti's argument that Principle A can be satisfied at D-structure is weakened because it relies on *picture*-NPs, which are problematic for the binding theory anyway.

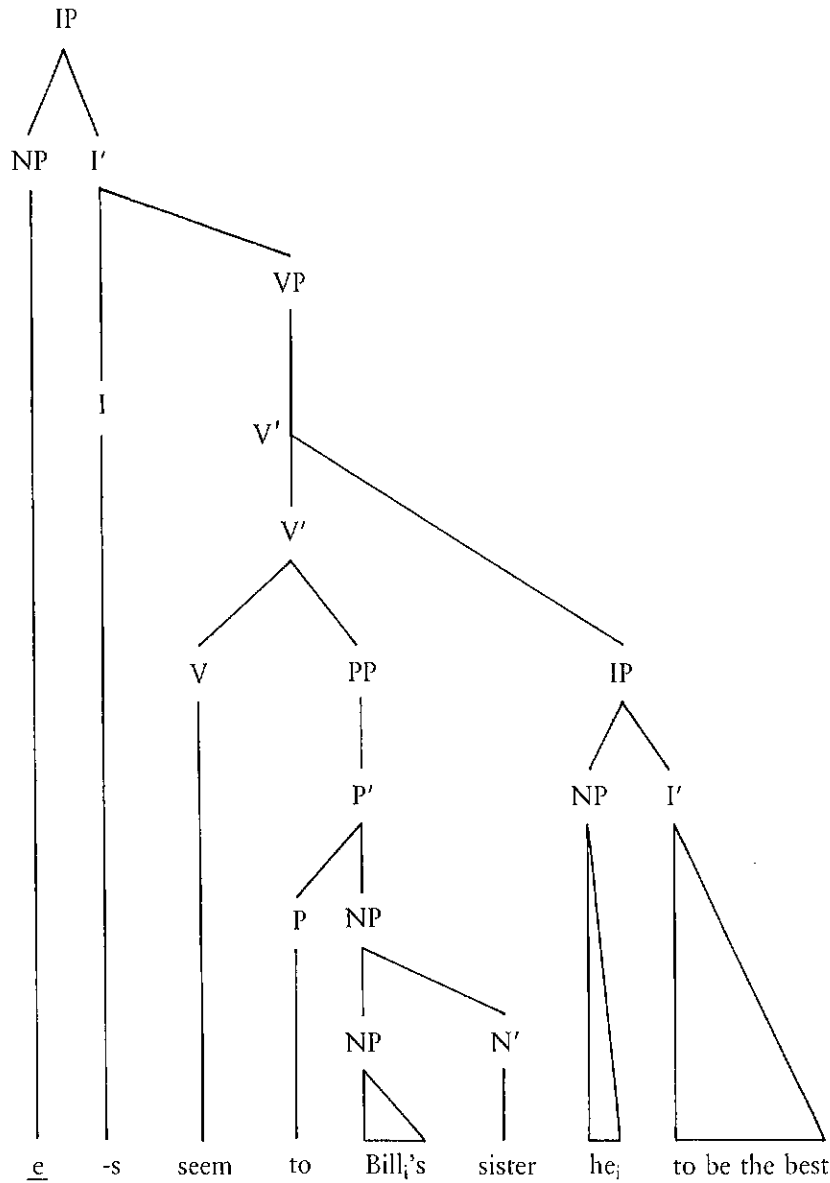
Let us consider the application of Principle C. (98a) is ruled out on the interpretation indicated by the co-indexation: *Bill* must not be coreferential with *he* (Belletti and Rizzi, 1988: 318).

98a *He_i seems to Bill_i's sister to be the best.

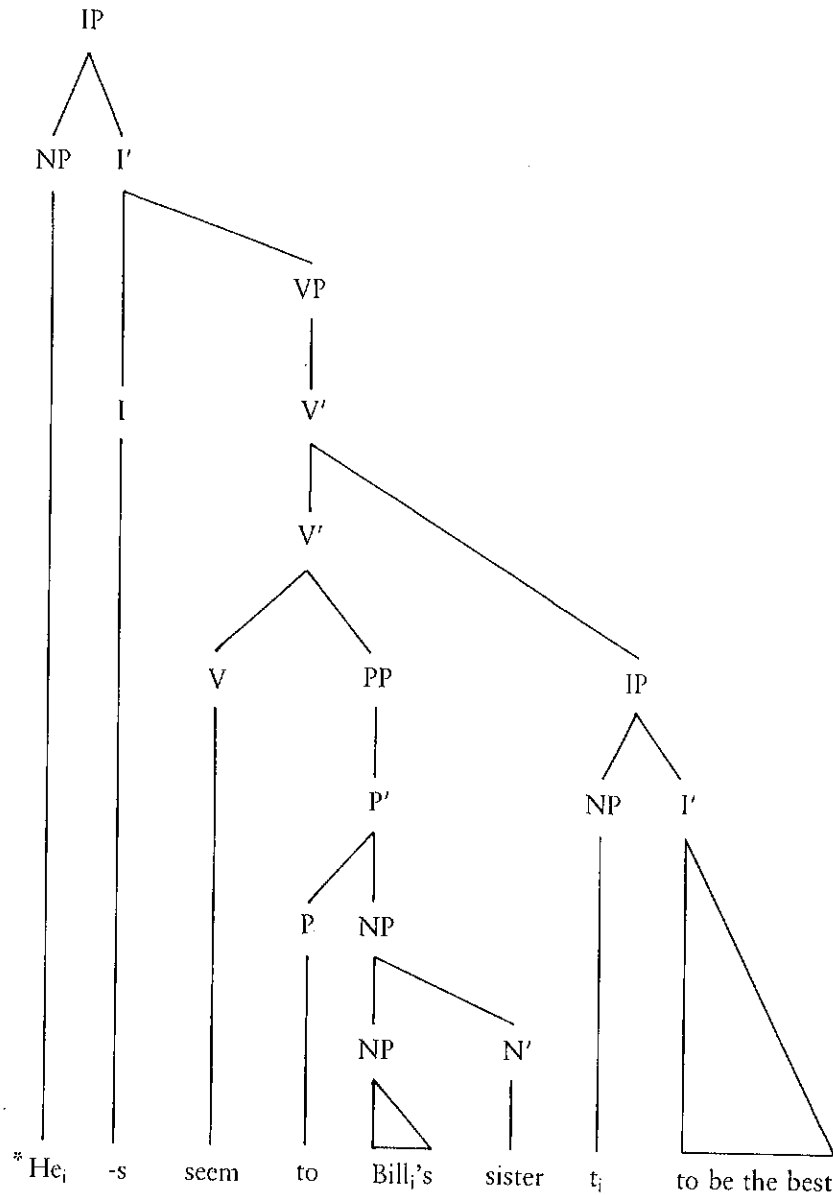
¹⁸ We have illustrated the problems with *picture*-NPs in chapter 4, exercise 3. For discussion of the data the reader is referred to work by Prewett (1977). Nakajima (1984) proposes that *picture*-NPs should be kept outside the BT. Mohanan (1985) contains a similar suggestion.

Consider the syntactic representations of the sentence:

98b D-structure



98c S-structure



If we were to assume that Principle C can be fulfilled at D-structure it would not be possible to rule out (98a) with the intended interpretation on the basis of the BT. At D-structure (98b), *he_i* is co-indexed with *Bill_i* but (i) *Bill* is outside the governing category of the pronoun and, moreover, (ii) *Bill* does not

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c-command the pronoun, as the reader can verify on the tree diagram. The D-structure configuration (98b) is identical in the relevant respects to the structure of (99) where co-indexation between *Bill* and *he* is allowed:

- 99a It seems to $Bill_i$'s sister that he_i is the best man.
 99b D-structure/S-structure
 It seems to $Bill_i$'s sister [that [he_i is the best man]].

We conclude that it is the S-structure representation (98c) which is ruled out by Principle C. *Bill_i*, an R-expression, is bound by *he_i* and this violates Principle C. This suggests that Principle C must be satisfied at S-structure.

The same reasoning can be applied to (100) to demonstrate that Principle B cannot be satisfied at D-structure either:

- 100 * He_i seems to him_i to be likely to be the best.

We leave the reader to work out the D-structure and S-structure of this example.¹⁹

On the basis of the discussion above, we conclude that Principles B and C apply to S-structure configurations. The evidence that Principle A can be fulfilled at D-structure is controversial.

4.5.2 THE FEATURE COMPOSITION OF NP-TRACES

Let us return to a point left unexplained in section 2.3.1 above. It was observed that example (37a), repeated here as (101), is ungrammatical:

- 101 * $John_i$ seems that it is believed t_i by everyone.

Let us try to explain why this should be so.

We have seen that traces of NP-movement occupy an NP-position and can be said to have nominal features of gender, number and person. This means that these traces are in fact like non-overt NPs. In chapter 4 we propose that NPs are subject to the BT. The question to address is: which principle applies to traces of NP-movement, i.e. what type of NP are NP-traces? Recall that there were four types of NPs:

¹⁹ See Belletti and Rizzi (1988: 318).

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102 Classification of NPs:

Type:	OVERT	NON-OVERT
[+anaphor, -pronominal]	anaphors	
[-anaphor, +pronominal]	pronouns	
[-anaphor, -pronominal]	R-expressions	
[+anaphor, +pronominal]		PRO (chapter 5)

The binding theory says that:

- (i) elements that are [+anaphor] must be bound in their GC.
- (ii) elements that are [+pronominal] must be free in their GC.

Consider the typical examples of NP-movement: a passive sentence (103a) and a raising construction (103b):

103a [John_i is believed t_i by everyone].

103b [John_i seems [_{IP} t_i to be the best]].

Which of the combinations of features listed in (102) would be appropriate to characterize the NP-traces in (103)?

Suppose the traces were considered to be R-expressions ([−anaphor, −pronominal]). Clearly this is not a good idea as the traces in (103) are co-indexed with a c-commanding NP in an A-position. If a trace of NP-movement were an R-expression it would violate Principle C.

Suppose the trace is [−anaphor, +pronominal], i.e. a pronoun. Again this will not do: the traces in (103) are bound in their GC. The reader will be able to work out that in both examples in (103) the antecedent *John* is contained in the GC of the trace.²⁰

Could the trace be like the non-overt element PRO, [+anaphor, +pronominal] discussed in chapter 5? We have seen that such NPs are subject to contradictory requirements with respect to the BT. The only context in which PRO is licensed is when it is ungoverned. Clearly, the object position of the passive verb in (103a) is governed, and similarly, infinitival IP not being a barrier, *seem* will govern the trace in the subject position of the infinitival IP (103b).

²⁰ Remember that we stipulated in chapter 3 that infinitival IP is not a barrier for outside government, hence *seem* governs the trace in the subject position of the complement IP.

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104 C

Type:

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Finally, we are left with the category [+anaphor, -pronominal], subject to Principle A. This is rather a nice result. As the reader can verify for himself, the traces in (103) are bound in their GC: t_i is co-indexed with a c-commanding antecedent in its GC. NP-traces are like anaphors.

If we treat NP-traces as anaphors the ungrammaticality of (101) follows from the BT: t_i must be bound in its GC. The GC is the lower clause, containing a governor (*believe*) and a subject (*it* or the SUBJECT, AGR). In (101) the trace is not bound in its GC.

At this point it is clear that the term 'antecedent', which we introduced to refer to the moved NP, is not accidental. The moved NP behaves like an antecedent in that it binds the trace. The requirement that the moved NP should bind the trace will also account for some of the properties discussed in section 2.3. Recall that antecedents of NP-movement c-command their traces (see section 2.3.2). We have defined binding in terms of co-indexation with a c-commanding element in an A-position. The c-command relation between the moved NP and its trace follows if we assume that the trace must be bound by the moved element.

On the basis of the examples discussed above we have identified NP-traces as non-overt NPs of the type [+anaphor, -pronominal]. This means that in our inventory of NP types (102) we can pair them with overt anaphors:

104 Classification of NPs

Type:	OVERT	NON-OVERT
[+anaphor, -pronominal]	anaphors	NP-trace
[-anaphor, +pronominal]	pronouns	
[-anaphor, -pronominal]	R-expressions	
[+anaphor, +pronominal]		PRO

There are now only three gaps in the paradigm we have set up. The absence of overt elements which are [+anaphor, +pronominal] was motivated in chapter 4. We have as yet no non-overt elements which are [-anaphor, +pronominal] and [-anaphor, -pronominal]. In subsequent chapters we shall see that these latter types also exist so that we shall be able to arrive at a picture where all overt NP-types have a non-overt pendant. We return to the classification of non-overt categories in chapters 7 and 8.²¹

²¹ The classification of NPs on the basis of the features given in (104) is discussed at length by Chomsky (1982).

5 Appendix: Subjects and Derived Subjects

106

So far we have assumed that unaccusative verbs induce NP-movement, hence that their subjects, i.e. NPs which occupy the [NP,IP] position, are derived subjects. In this section we consider a proposal which has been gaining ground in the literature where it is argued that subjects of transitive and intransitive verbs are base-generated in [Spec,VP]. This section is mainly based on Sportiche (1988a).

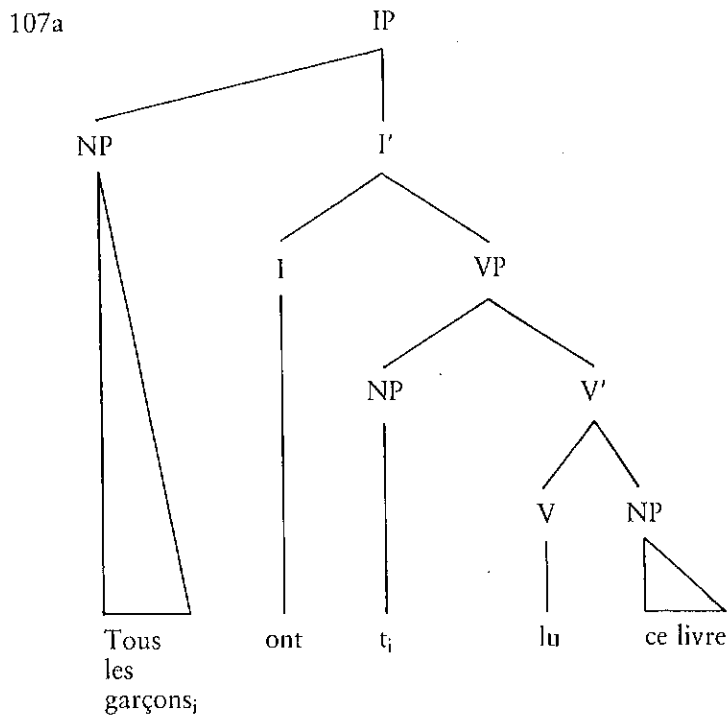
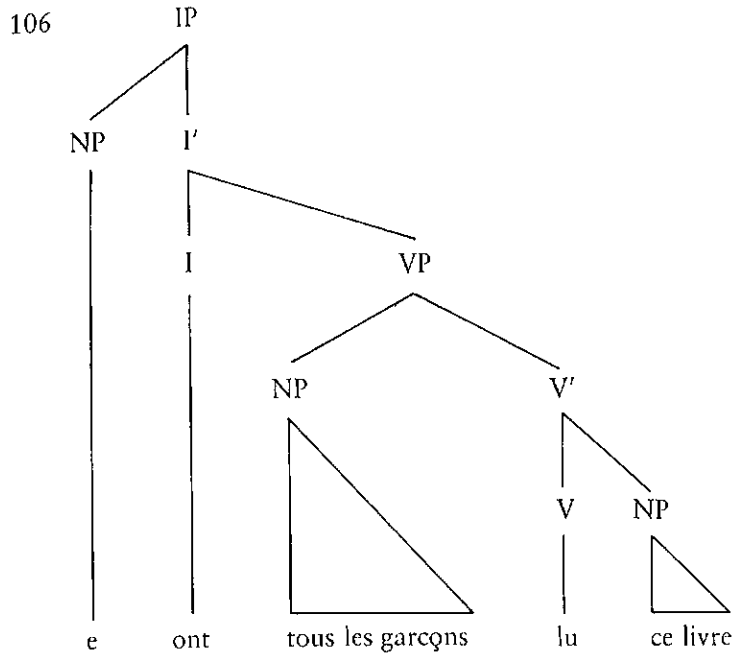
Consider the following French sentences:

- 105a Tous les garçons ont lu ce livre.
 All the boys have read this book.
 105b Les garçons ont tous lu ce livre.
 The boys have all read this book.

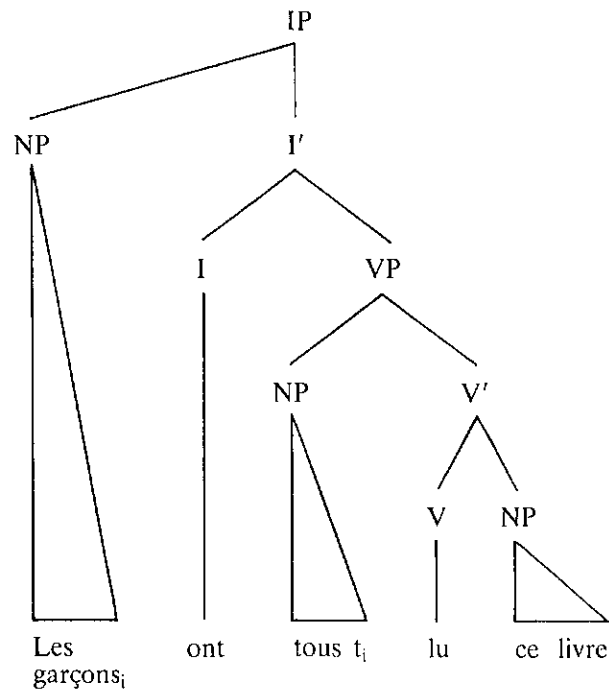
(105a) and (105b) are paraphrases. In the literature it has often been proposed that they are syntactically related, in the sense that one is derived from the other. One possibility would be that (105b) derives from (105a). In (105b) the quantifier *tous* occupies the position which we have identified as [Spec, VP] (cf. chapter 2). If (105a) were closer to the underlying order of the sentence in (105b) then we would have to assume that *tous* is moved downwards from the subject position [NP, IP] into the VP.

107

Alternatively, we might assume that the NP *tous les garçons* originates in the [Spec, VP] position. Under this view both (105a) and (105b) involve movement. In (105a) the NP *tous les garçons* moves as a whole to the [NP,VP] position, in (105b) only the phrase *les garçons* moves, leaving the quantifier in the [Spec,VP] position. Roughly, the D-structure of the sentence in (105) would be (106) and their S-structures would be (107):



107b



In (107b) *tous* is adjacent to the trace of the moved NP. The movements of the NPs in (107a) and (107b) are examples of NP-movement: an NP is moved to the subject position. Hence the trace of the moved NP is of the type [+anaphor, -pronominal] and subject to Principle A of the BT.

In his discussion of these sentences Sportiche (1988a) provides arguments that the relation between the trace and the moved NP is like that of an anaphor and its antecedent. In (107b) *tous* signals the position of the trace. *Tous* in (107b) is c-commanded by the related NP. The c-command relation is necessary, as illustrated by the ungrammaticality of (108b). In this sentence the NP *ces livres* does not c-command *tous*, hence it does not c-command its trace, which is assumed to be adjacent to *tous*.

- 108a L'auteur de tous ces livres a acheté cette maison.
The author of all these books has bought this house.
- 108b *L'auteur de ces livres a tous acheté cette maison.
*The author of these books has all bought this house.

Secondly, the quantifier must not be too far removed from the related NP:

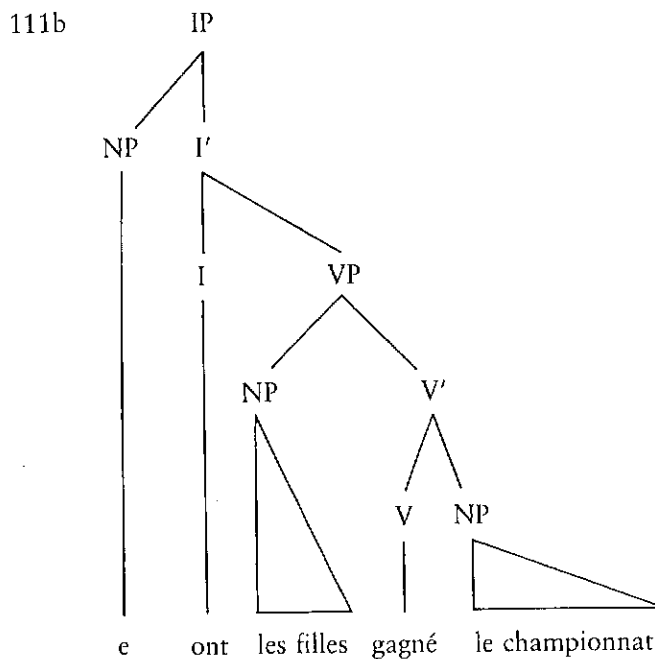
- 109 *Les garçons lui ont demandé de [[PRO tous acheter ce livre]].
 the boys him have asked all to buy this book

In (109) the NP *les garçons* cannot be related to the quantifier *tous* in the lower clause. Sportiche explains the ungrammaticality of (108b) and of (109) by arguing that the quantifier *tous* is adjacent to a trace of the moved NP and that the trace is a trace of NP-movement, subject to Principle A of the BT.

- 110a *L'auteur de [_{NPi} ces livres] a tous _{t_i} acheté cette maison.
 110b * [_{NPi} Les garçons] lui ont demandé de [[PRO tous _{t_i} acheter ce livre]].

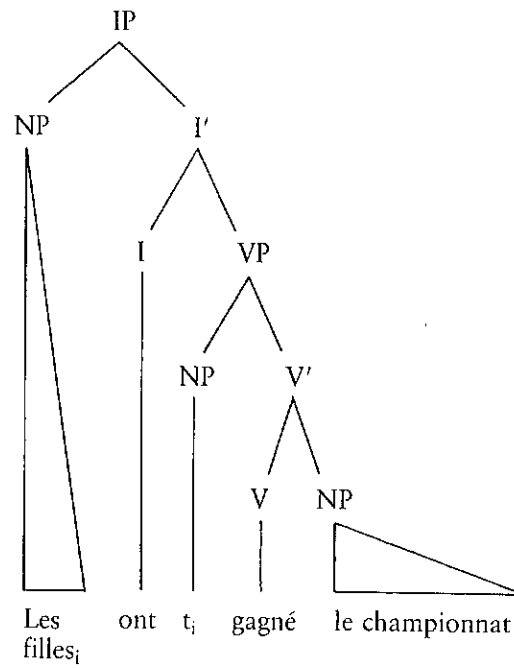
Sportiche (1988a)²² proposes that indeed all subject NPs are base-generated in the [Spec, VP] position. Hence a sentence such as (111a) would have the D-structure (111b) and the S-structure (111c). Similarly the English example in (112a) would have the D-structure (112b) and S-structure (112c):

- 111a Les filles ont gagné le championnat.
 The girls have won the championship.



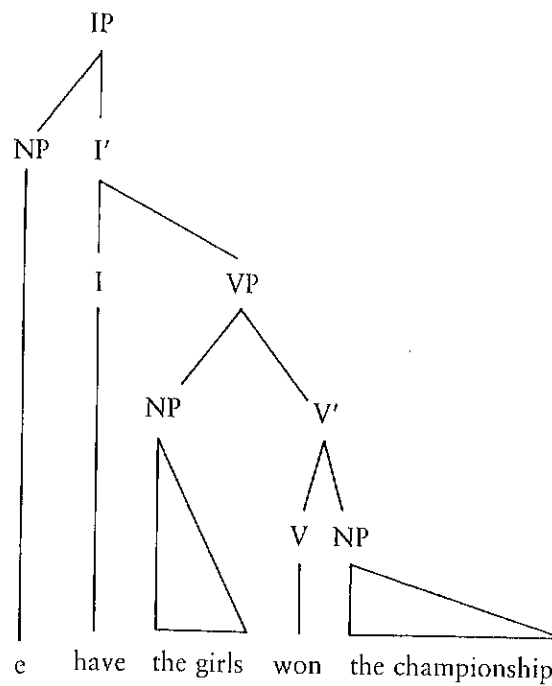
²² Similar proposals are discussed in Kitagawa (1986), Kuroda (1986), Koopman and Sportiche (1987) and Zagana (1982). We have based the discussion here on Sportiche (1988a) because this article is probably most readily available.

111c



112a The girls have won the championship.

112b

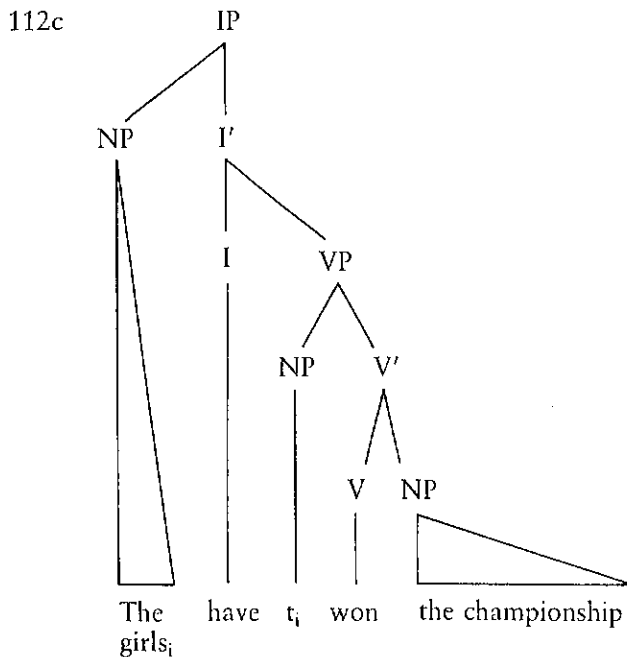


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The proposal that all NPs found in [NP,IP] are derived subjects²³ obviously has considerable consequences for the theory of grammar outlined so far. For instance, the proposal entails that the [NP,IP] position is always empty at D-structure and is not theta-marked; in other words, it is a theta-bar position at D-structure. In addition we can no longer define the external argument of the predicate as that realized outside VP, since all subject NPs will have traces in [Spec,VP]. The classification of verbs discussed in section 3 of this chapter will also have to be revised. If [Spec,VP] is an NP position the question can also be raised whether all NP-movement must pass through it. All these and many other issues are subject to ongoing research. We shall not go into the problems here.

In the subsequent chapters of this book we shall not adopt the hypothesis that all NPs in the [NP,IP] position are derived subjects. We shall stick to the more traditional line developed so far. However, we encourage the reader to bear in mind the hypothesis when reading the following chapters.

²³ This statement may be too general though, as seen in Rizzi and Roberts (1989).

6 Summary

This chapter discusses the properties of NP-movement, which is illustrated in passive and raising structures. It is argued that NP-movement affects NPs which cannot be case-marked in their base-position. NP-movement leaves a co-indexed trace which is a non-pronominal anaphor, hence subject to Principle A of the binding theory. The moved antecedent NP and the trace form a chain.

Verbs which induce NP-movement are those which lack an external theta role and fail to assign ACCUSATIVE case. These verbs are referred to as unaccusative verbs. The link between the two properties of these verbs is expressed by Burzio's generalization:

1 Burzio's generalization

- (i) A verb which lacks an external argument fails to assign ACCUSATIVE case (Burzio, 1986: 178–9).
- (ii) A verb which fails to assign ACCUSATIVE case fails to theta-mark an external argument (Burzio, 1986: 184).

The chapter also examines the relation between the two levels of representation: D-structure and S-structure. The structure preserving principle imposes severe restrictions on the effect of transformations. The theta criterion and the extended projection principle are argued to apply at both D-structure and at S-structure, while case theory and the binding theory apply at S-structure.

In the final section we discuss the proposal that all NPs in [NP, IP] are in a derived position and are base-generated in [Spec, VP].